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APPEAL OF YUKON MINERS

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DOMINION OF CANADA . . .

AND INCIDENTALLY SOME ACCOUNT OF THE
MINES AND MINING OF ALASKA AND THE
PROVISIONAL DISTRICT OF YUKON.

THE MORTIMER CO. PRINT, OTTAWA.

1898

APPEAL OF
TUKON MINERS

Entered according to the Act of the Parlia-
ment of Canada, in the year 1898, by
M. Landreville, A. E. Wills, and
Edward J. Livernash, at the De-
partment of Agriculture.

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1898.

AND IMMEDIATELY SUBSEQUENT TO THE
MINE AND MINING OF ALASKA AND THE
PROVINCIAL DISTRICT OF YUKON.

THE MOUNTAIN OF WHITE OAKS

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INTRODUCTORY.

To His Excellency the Governor-General ; the Honourables, the Members of the Queen's Privy Council ; and the Honourables, the Members of the Parliament of the Dominion of Canada :

WE take this method of submitting for your consideration matters of moment to the Dominion of Canada. If the Provisional District of Yukon, whence we hail, had representation in Parliament, as organized portions of the North-West Territories have, a better mode of presenting the cause we stand for would offer ; but, as it is, we feel it expedient to pursue some informal course, bringing promptly to the attention of the Governor-General, members of the Privy Council, and members of the Senate and House of Commons of Canada, who from day to day are dealing with questions affecting those whom we are commissioned to represent, some facts we believe to have value in relation to governmental action ; and it has appeared to us not wanting in respect for the honourable gentlemen addressed, to reduce our plea to writing, and to lay before each of them a copy of such writing.

That our position may be understood we beg to give some account of the circumstances leading to our presence in the capital.

Near the close of September, 1897, the Gold Commissioner for the Yukon District received official notification of the Order-in-Council of August 8th amending the regulations governing

placer mining in his jurisdiction. Within a few hours after the news transpired, a multitude of miners gathered in Dawson to determine a way of laying before the Government evidence that the amendments were not suited to the conditions obtaining in the District. Five of their number, all citizens of Canada, were chosen to frame a petition to His Excellency, the Governor-General in Council, reciting the reasons of the miners for objecting to the changes in the regulations. This committee prepared a petition; but in reporting to a second mass-meeting, called to hear the report, withheld the memorial and advised inaction pending arrival of the Commissioner of the Yukon Territory, who was said to be very near Dawson. The suggestion was approved, and the meeting adjourned. The report as to proximity of the Commissioner was incorrect; and, when this became clear, the Yukon Chamber of Mining and Commerce called a public mass-meeting. At this meeting, which was attended by hundreds of miners, the petition drawn by the original committee was read, and it was voted that it be circulated for signature. Subsequently the Chamber heard counsel that led to proposals for amending the instrument in minor respects and adding a paragraph accrediting three persons to go from the Klondike to Ottawa and there represent the petitioners. Accordingly, another mass-meeting was held, to consider these proposals. The attendance was again large and representative. It was voted that the suggested amendments be made and the petition before circulating be completed by insertion of the names of the three representatives. The meeting delegated to a committee of ten the duty of selecting these representatives and defining their authority; and this committee was chosen by nomination and election, and was made up of leading members of the mining community, citizens and aliens.

The Committee of Ten (Mr. George W. Morgan,

Chairman, and Mr. Samuel Stanley, Secretary), elected Messrs. M. Landreville and Edward J. Livernash and Dr. A. E. Wills as representatives, and authorized circulation of the petition with their names set forth as directed. The Yukon Chamber of Mining and Commerce at its next succeeding meeting unanimously adopted a resolution expressing satisfaction with the action of the Committee.

The purpose being to present the petition early, and to have the representatives at the capital in the opening days of the session of Parliament, only a week was devoted to obtaining signatures. Nevertheless more than 2,500 of the 4,000 men in Dawson and the mines thereabout signed.

The petition runs as follows :

To His Excellency the Governor-General in Council :

WHEREAS, the Government has so amended the mining regulations governing the placers of the Yukon District of the North-West Territories, that a heavy royalty is imposed, based on the gross output of the gold-fields; and that "creek" and "river" claims are limited in length to one hundred feet each rather than five hundred feet as heretofore; and that every alternate claim is reserved from location,

NOW, THEREFORE, we, the undersigned miners of the Yukon District, do humbly petition as follows :

Believing that the Government has been misinformed as to the Yukon placers, and having profound faith in the justice of the representatives of the Crown and the people, we represent as true these propositions :

1. Grossly exaggerated reports have been published through the newspapers of this Dominion and the United States concerning the wealth of the Klondike and Indian Divisions of the Yukon District. Men of this District who have gone hence to the centres of population in this country and the United States are quoted by the press as authority for assertions either wholly false or grievously misleading. The impression has been given, apparently, that enormously rich claims are the rule, and that gold may be mined with profit, even now, almost anywhere in the vast region about the village of Dawson. That impression is not justified.

2. Of the 3,000 claims thus far recorded in this District not more than two score have been demonstrated to be remarkably rich. The others are either moderately rich, ruling conditions considered, or practically unknown quantities—most of them the latter. The indications are favourable for fair profit from a considerable percentage of these others if

no royalty is imposed ; but there is no certainty that a substantial number of the claims would be profitable if heavily taxed. Indeed, it is probable that many of them would not be worth working at all.

3. The wage rates are high and supplies are costly. Ordinary unskilled labour commands \$1 to \$1.50 an hour ; flour costs \$12 to \$250 a hundred-weight ; bacon costs 50 cents to \$1.50 a pound ; fresh beef costs 80 cents to \$1.50 a pound ; good-grade blankets cost \$25 apiece ; and other supplies are proportionately expensive. It is difficult and at times impossible to buy supplies at all ; and along the Yukon famine conditions threaten every winter, and shortage is the rule. These conditions are of course temporary ; but so great are the difficulties with which men are beset who cope with this desolate region, that it is unreasonable to expect any substantial modifications as to wages or supplies until claim-holders have gone far toward leaving the proved stream-valleys a mass of worthless tailings. In consequence of the costliness of labour and supplies, not many of the mines of this District, even in the valleys of the Bonanza and its tributaries, yield much beyond expenses at present, and many that have been well prospected are not rich enough to justify the claim-holders to employ miners to assist in working them. In many cases, accordingly, a royalty of ten or twenty per cent. of output would be a medium of confiscation.

4. Mining is seriously hindered, and its costliness materially increased, by severe climatic conditions. From very near the earth's surface to the greatest depth yet reached everything is frozen throughout the year, the temperature from early October to June ranging between the freezing point and seventy degrees below zero. During this long cold season drift mining is carried on, and it is necessary to thaw the frozen ground by means of banked fires before the pick and shovel can be used ; and before sluicing can be done in the spring the gravel mined in winter must be thawed by the sun's heat. From June to October, when open pits may be worked, the sun must be given time to thaw exposed gravel, and frequently fires must be brought to bear to unfetter ice-bound masses.

5. There are no roads in all this District, nor are there, so far as we know, any steps in progress to establish means of transport ; and never were men more handicapped in moving to and from mines than are we of the Yukon. During the cold season we are obliged to pay 10 to 15 cents a pound for transporting supplies a distance of fifteen miles ; during the warm season, 30 cents. For longer distances the charge is even greater proportionately.

6. This is a land of tremendous solitudes and marvellous wildness. It appears to be a land of immense promise for the prospector ; but the appearance may be deceptive. There is practically nothing known of it beyond a radius of fifty miles from Dawson, and not much beyond a radius of

twenty miles. It is outside the range of language to picture the trials that encompass the explorer who goes forth here with pick, shovel, and gold-pan to search for gold. Only strong men are equal to the task, and only men of great courage and perseverance can press far. If the Government place a heavy hand on the prospectors, already almost frenzied with toil and privation, prospecting in this District will be abandoned by the majority, and prospectors will turn toward other gold-fields. This is not a threat: it is a condition. Disheartened by the regulations complained of, many who are here are already planning to leave Canadian territory.

7. To limit "creek" and "river" claims to one hundred feet in length is to discourage prospecting; and to reserve every alternate claim from location must have a similar effect, and also discourage the investment of capital for development of the resources of the District. And this because—

(a) The pay-streak is so narrow on some claims with which we have familiarity, so deeply buried under frozen muck in nearly all, and so broken in most, that the average hundred-foot claim would not justify the expenditure of energy and money required to gain and work it under the conditions peculiar to this latitude and these times of costly food, high wages, and absence of machinery, even were Government to desist as to heavy royalty.

(b) The fall of the water wherewith sluicing must be done is so slight that it is not adequate for the proper working of a claim five hundred feet in length; and it is not uncommon for a claim-holder to be obliged to obtain from his neighbours concessions as to water-rights. Considering the cemented state of the pay-dirt, it is a contradiction of elementary principles of mining to limit claims to one hundred feet.

(c) Should the Government fail to co-operate with the claim-holder, the having only one hundred feet, and that between Government claims, would be an affliction, in that miner-like provision could not be made for the most profitable working of the central claim. For example, dams could not be made effective without trespassing on the Government claims by the backing of water, nor could sufficient lengths of sluice-boxes be laid. Miners, moreover, could not co-operate for the joint working of consecutive claims, as at present.

(d) Should the Government, on the other hand, sell at auction the claims bounding the claim located, it might well be that the miner whose prospecting had given market value to these adjoining claims would be crowded by capital, for whereas, with every claim open to entry at nominal charge, the successful prospector has an even chance of avoiding the dangers that hang above favouritism to capital, human affairs are so constituted that, despite the will of Government, capital must have an advantage over the average prospector in any competition for the purchase of leases

where the state designs to make the sales yield substantial revenue.

Now, FINALLY : We came into this wilderness, led on by the fair laws and promising stream-valleys and mountains of these far-reaching territories ; and we have made for ourselves the huts we dwell in, the trails we traverse, and the rude implements with which we toil. Shall the Government reach out unkindly and vary in essence the laws that cheered us hither, take from us an unreasonable portion of that for which we have suffered, and impose on the men who are toiling as prospectors in a land of eternal ice, conditions ungenerous and perhaps prohibitive? We have endeavoured to the best of our ability to set before your Excellency the conditions surrounding us, and to dispel the false impression that appears to prevail in Canada as to universal richness of this District—an impression founded on the success of the few without regard to the failure of the many ; but in that we may have overlooked some points as to which we should have spoken, and in that we deem it best not to cumber this petition with masses of exact information supporting the general propositions advanced, and in that we are so isolated from Ottawa that we cannot as a body speedily communicate with your Excellency, we send to you as the bearers of this petition, and as our spokesmen and representatives, three of our number, residents of this District, Messrs. M. Landreville, A. E. Wills, and Edward J. Livernash.

WHEREFORE, your petitioners humbly pray that until the difficulties which are unavoidable at present have been modified, no artificial burdens be added to the heavy load we Yukon miners are bearing ; and that your Excellency send into this District a commission of enquiry to report fully on the character of the Yukon gold-fields ; and that, pending such report, your Excellency restore the regulations displaced by those of which we have ventured to complain ; and that the three bearers of this petition be given an opportunity of making themselves serviceable to your Excellency in the giving of information possessed by them with reference to the placers of this District. And your petitioners, as in duty bound, will ever pray.

Dated in Dawson the 1st day of December, year of our Lord one thousand eight hundred and ninety-seven.

ALEXANDER McDONALD,
LAZARE RARRETTE,
SIMON J. STILES,

and 2,520 others.

This petition was by us filed with the Gold Commissioner for the Yukon District, for transmission to the Governor-General in Council ; and we have journeyed from Dawson to Ottawa, and are

here to give whatsoever aid we can in bringing to the notice of the Government the truth as to the Yukon country. Prior to our departure the Committee of Ten adopted a resolution, directing us, in view of the likelihood that conditions had arisen at the capital of which the committee had no knowledge, to exercise our discretion in supplementing the petition by such addresses and measures as enlightened regard for the welfare of the Dominion and development of the mineral resources of the District should suggest.

The petition has been received by the Honourable, the Minister of the Interior, and on consulting it we find that the Gold Commissioner has attached to it this message :

DAWSON, N.W.T., 13th Dec., 1897.

Hon. Minister of the Interior,

Ottawa, Canada :

SIR,—I have the honour to transmit herewith a petition signed by a majority of the miners in this Yukon District. I have not the leisure necessary to examine and report thereon as I could have desired, but you will doubtless gather from my reports my opinions on the subjects with which it deals. The gentlemen who have been appointed by the miners to accompany it to Ottawa will be able to give you very full information in reference to the country, mines, methods of mining, and all other points on which you may desire information. Dr. Wills, of the North-West Mounted Police, is himself quite a prospector, and has taken a great interest in mining and the regulations governing it. Mr. Landreville, a Canadian from Quebec, is a practical miner, and had interests on Glacier Creek before that portion of the country was known to belong to Canada. Mr. Livernash has had a legal training which has been of much assistance to him in collecting information which will in due time be submitted for your consideration.

I have the honour to be,

Your obedient servant,

THOMAS FAWCETT,

Gold Commissioner.

With this explanation, we proceed to lay before you some of the things we should have been glad to say to you formally and in person had the opportunity been ours.

Respectfully,

M. LANDREVILLE,
A. E. WILLS,
EDWARD J. LIVERNASH.

OTTAWA, March, 1898.

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I.

CANDIDLY SUGGESTING THAT VERY LITTLE IS KNOWN OF THE ICY NORTH- LAND.

ANY national policy of government which, in considering the gold-fields of the Provisional District of Yukon, ignores the gold-fields of Alaska is certain to be detrimental to Canadian interests; much as any policy of tariff which should be based on data gathered in Canada alone and regardless of the national resources, commercial activity, manufactures, and effectiveness of other countries would be certain to have radical defects that a consideration of the relation borne by this Dominion to such other countries might have avoided. For this reason we shall begin by summarizing with whatever of brevity we can, without failing of our purpose, the knowledge extant of Alaska as well as the Yukon District, so far as auriferous deposits are concerned

To be frank at the outset, scarcely anything is known of the vast region wherein Circle City and Dawson sit shivering. When anybody tells the boundaries of a so-called mineral belt there, it is safe to assume that he is guessing. Men have not been moving about in that savage realm long enough to know much definitely concerning the extent or value of the mineral deposits. The best that can be done is to lay before you more or less disconnected bits of information, springing as a rule from insufficient exploration, and to write in a big, bold hand across nearly all the map of the frozen Northland this honest word: Unknown. Consider how immense and well-nigh inaccessible

Alaska and the Yukon District are, and that until last year only a few hundred miners were scattered in that great solitude, and that these few hundreds were nearly all new-comers there, and that millions and millions of acres of the stream-valleys so trippingly on the tongue of late have never been pressed by the foot of a white man, and you can readily believe little dependence should be placed on stories pretending to set forth with much of certainty the extent and wealth of the gold-fields of those silent lands.

In Alaska gold has been found about Juneau, near Sitka, on Prince William Sound, on Six-Mile Creek, on Resurrection Creek, on Bird Creek, on the Sushitna River, on Unga Island, on the Kuskokwim River, on Norton Sound, on the rivers falling into Kotzebue Sound, on the Koyukuk River, on the Tanana River, on Minook Creek, on Beaver River, on the Porcupine River, on Birch Creek, on Sheep Creek, on Seventy-Mile Creek, on Mission Creek, and on Forty-Mile Creek. In the Yukon District the precious metal has been found on Forty-Mile Creek, on the Chandindu River, on Moose-Hide Creek, on Deadwood Creek, on the Klondike River, on Dion Creek, on Bryant Creek, on Montana Creek, on Insley Creek, on the Indian River, on Sixty-Mile Creek, on the Stewart River, on the Pelly River, on the Little Salmon River, on the Big Salmon River, on the Lewes River, on the Hootalinqua River, on the Liard River, on the Frances River, and on the Finlayson River. This list looks formidable: it does not follow, however, that these localities are much known, nor does it follow that the finding of gold in them should lead a Government to presume richness or even value.

II.

TELLING OF THE MINES ABOUT JUNEAU
AND SITKA AND THENCE ON TO
YAKUTAT.

THE country about Juneau is better known than any of the other Alaskan districts mentioned. Since the autumn of 1880¹ miners have been prospecting a mountainous strip about one hundred miles long running northwesterly from a few miles south of Juneau and skirting the sea and embracing the islands hard by the coast. At first auriferous gravel² and afterward gold-bearing quartz³ *in situ* were found, and at present placer mining is carried on to a limited extent and reef mining is prosecuted on a large scale. Granites,⁴ gneiss, slates, serpentine, and other igneous and highly metamorphic rocks abound in the district, and are cut by quartz veins bearing gold, the yellow metal being as a rule associated with iron pyrites. Most of the ore is low grade: for instance, 1,775,987 tons,⁵ milled by the Alaska Treadwell Gold-Mining Company, yielded an average of \$3.40 to the ton. However, some ore bodies there are producing \$10 to the ton,⁶ and in the Comet group of mines⁷ the quartz is so rich in places that it is moiled down with sledges and bars upon canvas spread on the floors of the drifts, the ordinary process of releasing the ore by blasting being deemed too wasteful of the precious particles; moreover, a lode was discovered on Berners Bay⁸ last October which shows ore as rich as the best of the output of the Witwatersrand. Although not much of the quartz yet discovered is heavy in gold and although practically all of it has to be subjected to chemical treatment, the accessibility of the mines of the Juneau district enables the mining to be conducted easily and cheaply, deep-water vessels

finding no difficulty in mooring alongshore, so that low-grade ore is handled by capitalists with much profit, as witness that on the 1,775,987 tons of ore already cited the Alaska Treadwell Company⁹ reaped a net profit of \$2,980,286, with the gross yield \$5,843,116. Indeed, it is claimed¹⁰ that at present this concern is able to work \$3.68 ore at a cost of \$1.07 a ton, the output covering the cost of mining, milling, chlorination, and transportation. It is not known how deeply the lodes are profit-yielding; but a tunnel in one of the principal mines on Berners Bay¹¹ taps the quartz vein at a depth of 1,000 feet, and the ore at that level gives no evidence of failing value nor the lode of pinching out. About a dozen quartz mills, approximately 550 stamps, are in operation this season, and within the year at least 300 additional stamps¹² will be installed.

Not much is heard of the mines about Juneau, but it is a fact that they have produced about \$12,000,000,¹³ and it is true that in 1897 they yielded more than one-half as much wealth as was mined in the same period from the placers of the Klondike¹⁴ and gave a much greater profit¹⁵ than the diggings of that famous district.

In 1873 gold-bearing quartz was discovered near Sitka,¹⁶ and a five-stamp mill¹⁷ represents the progress since then in mining thereabout. Sitka has been inhabited by white men since the dawn of the present century; but from the day the flag of the Czar was given to the winds that shrieked about the castle of Baranoff the type of gold-hunter peculiar to the place has been wanting in activity. The region¹⁸ has not been thoroughly prospected.

Along the sea from below Lituya Bay to Yakutat¹⁹ some prospecting has been done: say as one day in a million years, comparing the territory to be studied with the time expended in exploring. Deposits of auriferous sands have been sluiced, and the output²⁰ for 1897 was about \$10,000.

III.

PRESENTING RECENT INFORMATION OF PRINCE WILLIAM SOUND, COOK INLET, AND UNGA ISLAND.

REPORTS of the discovery of rich gold-bearing quartz veins on the mainland of Prince William Sound and on islands near the shore have only this basis : prospectors have recently located what they believe to be profitable lodes of copper-bearing rocks,¹ and the ore shows traces of gold.

The placers of Cook Inlet ruined a few hundred men,² in the season 1895-6, who were persuaded to flock thither by misleading reports of their wealth and the conditions governing prospecting ; but the country apparently is as promising so far as prospected and as nearly unknown³ as the Yukon district, if in the case of the Yukon we except a few branches of the Klondike and the Indian. Exploration of the region has been confined to the valleys of four streams, tributaries of the Inlet : Six-Mile Creek, Resurrection Creek, Bird Creek, and the Sushitna River. Very little careful prospecting has been done save on Six-Mile and Resurrection Creeks,⁴ for the reason that prospecting in that latitude is exceedingly slow, labourious, and consequently expensive, and not many can afford to persevere long enough to prove the character of a claim. The percentage of the men who have succeeded is low ; but most of the thorough prospecting⁵ has revealed gold in profitable quantity. On Canyon, Chilch, and Lynx creeks, branches of Six-Mile, paying placers are worked ; and Bear and Palmer creeks, affluents of Resurrection, are yielding well. Both the main streams are really small rivers, the Six-Mile⁶ for example being nearly 200 feet wide at its mouth and carrying a depth of three feet of water rapidly. It is said that one claim on Lynx Creek⁷ yielded \$30,000 last year. On Bear Creek⁸ as high as \$80 a day to the man is reported. As a

rule, however, the yield has not left much profit-margin to claim-holders who have worked the deposits with hired men, although wages⁹ have been only \$4 a day and the freight rate¹⁰ on supplies is only one-half a cent a pound from Puget Sound to the diggings. Rich finds are reported from Bird Creek,¹¹ 80 cents to \$1.25 to the pan being the best yield, but no bedrock mining has yet been done. The Sushitna River has been only hastily examined by a few prospectors. It is nearly as large as the Copper River,¹² traverses an exceedingly wild and difficult region, and seems worthy of careful inquiry. Mr. W. A. Dickey,¹³ who has gone far up the Sushitna twice, gives this summary of the latest experience: "At the mouth of the river twenty men encamped, and early in March, 1897, went up the river, on the ice, as far as the canyon [200 miles above the mouth]. Nine, led by Captain Andrews and Mr. Jacks, penetrated far into the interior, and have not yet been heard from. We found no gold worth working, though indications were good. In the lower river pans showing 200 and 300 colors have been taken."

The production of the Cook Inlet placers has been about \$400,000,¹⁴ of which \$200,000¹⁵ were mined last year.

Spread on your reading-table a map of Alaska, and find the pin-point called Unga Island. It is of an archipelago, and to the eye of the passer-by there seems reason to believe that the mineral formations of Unga are not materially different from those of the peninsula and the neighbouring islands. A forty-stamp quartz mill¹⁶ is operated on Unga. The ore¹⁷ contains free gold and native copper, and is present in great quantity. In 1896 41,000 tons¹⁸ yielded between \$300,000 and \$400,000 in bullion. During 1897 the bullion shipments were about \$30,000 a month. There has been scarcely any prospecting¹⁹ on other islands of the group or on the peninsula.

IV.

INDICATING THE DEARTH OF KNOWLEDGE AS TO THE KUSKOKWIM, NORTON SOUND, AND THE NORTH COAST OF ALASKA.

THE Kuskokwim River is one of the great streams of the North ; but perhaps not half a dozen white men now living have any directly acquired knowledge of it beyond the Roman Catholic mission, Oknagamute, and certainly no man who has been heard of is qualified to speak with authority of the possibilities of the country it traverses, so far as mining reaches. All that can be said truthfully is that colours¹ have been found on its bars by three or four prospectors, who were not favourably impressed by the general indications they observed during unduly hasty examination of the region. One of the few who have personal knowledge of this river, Mr. E. Hazard Wells, says, in a report issued last month² by the War Department of the United States :

To the westward of the Tanana rise gigantic chains of mountains which will make prospecting toward the Kuskokwim and Sushitna rivers extremely difficult. From a good point of vantage upon a high mountain near the head of Copper River I obtained a bird's-eye view of the country to the westward, and beheld Titanic masses of rock upheaved in much the same fashion as the Andes in South America. A range of very tall mountains parallels the Tanana on its westward side, joining at an acute angle with the high Alaskan range which sweeps across from the Tanana near Robertson River to the mouth of the Sushitna and beyond. To the westward of this V-shaped arrangement of the mountains lies the vast unexplored territory of the Kuskokwim. I have descended the Kuskokwim 800 miles to the sea coast, and found it a broad, deep, and somewhat sluggish stream flowing in from the unknown east. Indian reports state that the Kuskokwim heads within three days overland march of the Lower Tanana. A pass is reported to exist by which it can be reached from the Tanana. My observation on the Lower Kuskokwim does not induce the belief that it flows out from a gold-bearing region ; but it is possible, nevertheless, as its sluggish waters would hardly carry colors very far down stream.

In the coast region about the mouths of the Yukon practically no prospecting has been done, excepting on the shore of Norton Sound, and not much even there. Silver² has been discovered on this sound, the ore yielding 143 ounces⁴ of the white metal to the ton, and a ten-stamp mill is kept thundering. Gold⁵ has recently been found there in the sea-sands.

A few years ago Lieutenant Stoney, U.S.A.,⁶ found a few grains of gold on bars of the Buckland and Selawik rivers, and Mr. Miner W. Bruce⁷ in the summer of 1894 saw in possession of an Eskimo near Fort Morton an ounce of coarse gold said to have been washed from gravel of the Kowak River. Last year the Indians⁸ of the same district brought to the seaboard more gold, said to have come from the Buckland and the Kowak, and also some said to have been yielded by the Noatak, another river falling into Kotzebue Sound. A number of placer claims have been staked, with what result is not known.

Further than this, Northern Alaska remains a *terra incognita* to the miner. Even the length of the streams has to be mapped by guess and their course by imagination.

V.

DEALING WITH THE RIVERS KOYUKUK, TANANA, BEAVER, AND PORCUPINE, LIKEWISE WITH MINOOK CREEK.

GORDON C. Bettles,¹ who knows more about the Koyukuk River than any other miner, admits that he knows nothing thoroughly as to the vast territory drained by it, and declares that years

of careful and extensive exploration will be required to learn the mineral resources of the Koyukuk country with anything approaching accuracy. Gold has been found in small quantities in the bars of the Koyukuk² and on some of the river's tributaries, and the indications point to valuable deposits of auriferous gravel. No white man has made his way to the source of this branch of the Yukon—perhaps the most considerable of the affluents of the Great River, and only a few traders and miners have gone far above the confluence of these bodies of water.

One hears the Tanana spoken of as a river with which men have grown familiar, yet it is within the truth to say that no white man has travelled from the mouth to the source of the Tanana and that the greater portion of the region through which the river flows is as little known as in the days when the golden sands of the Pactolus were gladdening the heart of Cræsus. A few prospectors have obtained promising colours³ from bars near the mouth of the stream, and only a few have tried. If more than two miners have made their way far up the Tanana and if more than two men have prospected the headwaters of the river, we have not heard of them. Messrs. Frank Densmore and John Bourke⁴ are known to have prospected for five hundred miles above the mouth of the stream, and these accomplished miners believe rich gravel will be found in the reach they examined. Colours were found constantly, and some of the prospects were so good that the latter gentleman made affidavit⁵ a few days ago that he believed diggings as rich as the best in the Klondike Division would be located there. That this conclusion may not be ascribed to envious Americanism it may be added that he is a loyal citizen of Canada and a native of the Dominion. The miners who have prospected the headwaters did not travel up the Tanana, but journeyed together up Forty-Mile Creek and crossed

the mountains between the source of Forty-Mile Creek and the source of the Tanana. One of them, Mr. J. G. Davies,⁶ an expert mineralogist, says they prospected the Tanana from the point at which they encountered it on crossing the divide until the source was reached. Light prospects were found at first, diminishing as they advanced, and at the source not even colours were obtained. The indications in the prospect-yielding reach were favourable for the presence of valuable deposits of auriferous gravel. In a letter written recently from Circle City, by a trustworthy gentleman,⁷ this passage occurs: "Fifteen or twenty of our miners are going to spend the winter in systematic prospecting on the headwaters of the Tanana. They will leave here during the next ten days. The Indians bring in some marvellous stories of the richness of that country, and it is possible we may have a big strike to report in the spring."

It seems feeble to stop here, considering that so many enterprising correspondents and brokers are juggling the word Tanana as though the Tanana were a known quantity; but this is an outline of all that is known to date. A mighty river in a wild and rigorous land where prospecting is almost as harrowing as crucifixion; a few scratches in its gravel-beds by men who could not tarry to do more; colours and golden promises that may or may not be fulfilled: such is the Tanana.

Minook Creek⁸ is indicated on few maps of Alaska. It is a small tributary of the Yukon, and joins that river about 250 miles below Fort Yukon. During the season 1896-97 a prospector mined gold-dust there to the value of several hundred dollars, and about 500 men who left home during July, August, and September last year, with the intention of going to Dawson by way of St. Michael, are wintering on Minook Creek, a few by choice, the others because they could not obtain passage to the Klondike. The latest reliable reports received

from Minook indicate that the creek closely resembles the streams of the Birch Creek district, that no bedrock results had been obtained when the Yukon closed for the winter, that colours have been found in surface gravel by many miners and good prospects by a few, and that thorough prospecting is in progress.

Of Beaver River⁹, a considerable tributary of the Yukon entering from the south between Minook Creek and Birch Creek, nothing definite is known. Colours have been found in surface gravel. The only time many miners¹⁰ sought this stream for gold not anything of value was found. Their prospecting, however, was superficial.

The Porcupine River heads within thirty miles of the Yukon, according to Mr. R. G. McConnell,¹¹ the Canadian geologist, approximately in latitude 65°, 30' N., and after describing a great semi-circular curve to the northeast, falls into the same river 150 miles further down. At its most easterly point it approaches within 80 miles of the Mackenzie, but is separated from it by the main range of the Rocky Mountains. The total length, he estimates, approximates to 500 miles. The mouth and much of the course of the stream, accordingly, are in Alaska. In the summer of 1888, Mr. William Ogilvie,¹² the distinguished Dominion surveyor, explored the headwaters of the Porcupine, and during the same year Mr. McConnell¹³ explored the lower reaches of the river below the point at which Mr. Ogilvie's researches began. Nothing is said in Mr. Ogilvie's official report suggesting that he found gold or indications of gold. In his recently published *Klondike Official Guide*,¹⁴ however, Mr. Ogilvie reports that as early as 1873 Mr. Arthur Harper found prospects on this river. Mr. McConnell¹⁵ says this: "Gold in paying quantities has not been found on either the Mackenzie or the Porcupine, and the rock formations bordering these rivers do not appear to be gold-bearing."

Mr. Davies,¹⁰ already mentioned, put in a few months washing surface gravel taken from the channel of the Porcupine, and went ninety miles above the mouth. Light prospects were found, but nothing which tempted him to spend a season at any of the points where gravel was tested.

VI.

TREATING OF BIRCH CREEK DISTRICT AND THE YUKON COUNTRY BETWEEN THERE AND THE BOUNDARY.

A GREAT deal of hard work has been done along Birch Creek, and the results have been gratifying. Since 1891¹ miners have been exploring the region, and at the time of the finding of gold on Bonanza Creek there were nearly 2,000 persons in Circle City² and the mines for which it is the base of supplies. Only a handful resisted the glamour of the Klondike, and by the close of last summer Circle City had a population³ of thirty souls, and the Birch Creek diggings were deserted. At present there are approximately 200 persons⁴ in the district. Birch Creek is a larger stream than the Klondike River. It is more than 300 miles⁵ long, and has an extensive network of tributaries, some of them large creeks. No earnest prospector⁶ who has delved in the Birch Creek district has failed to find placer gold in wage-yielding quantity, and there are many miles of creek country there which have not been touched by the pick. Eagle, Preacher, Mastodon, Deadwood, and other branches of Birch Creek have yielded well, and there are expert miners who believe that in output of gold the Birch Creek placers will give the Klondike Min-

ing Division a close race. The conclusion of Mr. Samuel Dunham,⁷ the gravel-mining expert sent by the United States Commissioner of Labor to examine the Klondike and Yukon-Alaskan gold-fields, is that there are hundreds of acres of gravel in the Birch Creek country which will pay \$6 a day to the man, even under present conditions. Undoubtedly a score⁸ of claims there were paying well enough, when the rush to the Klondike began, to justify their holders in working them with miners who were paid \$10 a day for their labour, and as will appear in the chapter dealing with the yield of the Klondike, there are not many Klondike claims which are known to be able to stand such wages. That the diggings along Birch Creek were deserted signifies nothing more than that miners are prone to stampede to any district which has the appearance of greater richness than the one wherein they are at work. The reports borne to Circle City from Bonanza Creek were so wondrously exaggerated that to anyone familiar with miners there is nothing disproving wealth of Birch Creek in the exodus up the Yukon. Many disappointed Birch Creek men² at present in Dawson intend to return to the claims they deserted. The placers of Birch Creek are like those of the Klondike, except that timbering is advisable on Birch Creek, in drift mining, whereas it is not necessary on the Klondike, and except that the pay is less concentrated on Birch Creek than on the Klondike. There have been no world-startling pans in the Circle City country; but the deposits of fair-pay gravel are extensive.

The total output¹⁰ of Birch Creek and its tributaries has been about \$2,000,000.

Sheep Creek¹¹ has yielded colours, and remains to be prospected. It is all but unknown. Some surface prospecting—not much—has been done on Seventy-Mile Creek,¹² with encouraging results, but the real character of the stream remains to be demonstrated. Mission Creek¹³ has been some-

what prospected, and miners think well of it. Recently American Creek,¹⁴ its principal tributary, has attracted much attention amongst men of the Klondike, because of a report that a rich strike had been made in its channel. Mr. Charles Kreling¹⁵, a careful inquirer, writing from Dawson under date January 19, 1898, says that while the report has not been fully confirmed, all the indications point to the conclusion that it is true. He adds: "From all accounts American Creek will rival the Klondike, and if the news is confirmed, there promises to be an exodus from Dawson."

Forty-Mile Creek rises in Alaska and discharges in Canada. It is between 100 and 150 yards wide¹⁶ at its mouth, and has a length of about 200 miles. Mr. Ogilvie reports that twenty-three miles of the channel lie on the Canadian side of the International Boundary.¹⁷ "The most productive part of the stream," adds Mr. McConnell,¹⁸ "is west of the Alaskan boundary." There is scarcely any difference between the Klondike district and the Forty-Mile district, in a general way; and the deserted village of Forty-Mile is on the Yukon, only forty-seven miles below Dawson. Coarse gold was found on the Yukon in 1886;¹⁹ and, to quote Mr. Ogilvie,²⁰ "as soon as the news of the discovery spread to the other mining camps [along the Yukon], where nothing but fine or dust gold had yet been found, the miners all repaired to the coarse-gold diggings on Forty-Mile." Since 1887 placer mining has been carried on there by a small band of resolute men²¹ who have taken the best pay from the lower reaches of the main creek and from some of the branches, but who have not touched the headwaters and who have not carefully prospected all of the tributaries. The Klondike excitement emptied the Forty-Mile diggings of their population, and at present not a score of men are at work there. Nevertheless, a considerable number of the Klondike miners are keeping an eye on their old claims

in the Forty-Mile country, and will see to it that their titles shall not lapse. Some of them believe Forty-Mile will yet yield handsomely.

The output²² of gold from Forty-Mile Creek has been about \$1,000,000.

With the Forty-Mile ends the list of Alaskan gold-fields of which white men have any knowledge worth mentioning.

VII.

CONCERNING THE CHANDINDU RIVER AND MOOSE-HIDE, DEADWOOD, DION, BRYANT, MONTANA, BAKER, AND INS- LEY CREEKS.

ON the Canadian side of the line the first important stream lying wholly in Canada is the Chandindu, or Twelve-Mile, River. It joins the Yukon about nineteen miles¹ below Dawson, is thirty to forty yards wide at its mouth, and its length is unknown. Last fall there was a stampede from Dawson to the Chandindu, and some claims were located²; but there has been no prospecting along its channel—that is, nothing on which any estimate of its value can be based. Colours were found, but nothing better. No miner was working on the Chandindu when we left the Klondike.

Moose-Hide Creek falls into the Yukon two to three miles below Dawson. It is a short stream, on which no work had been done, other than the most superficial prospecting, at the date of our latest advises, that is, January 19. Of this stream Mr. Ogilvie says in his *Klondike Official Guide*:³

Several other creeks have been prospected, flowing directly into the Yukon between Klondike and Indian ; and rumour says they are good. One creek, known as Mooseskin Creek, which flows into the Yukon about $1\frac{1}{2}$ miles below Dawson, is reported good. Rumour asserts that from four to six feet in depth of pay-dirt has been found, but no definite width had then been determined, ranging from eight (8) or ten (10) cents per pan to as high as eighty (80) cents. With this depth and richness and a reasonable width, say from forty (40) feet upwards, this creek is good enough to rank with the best. How much of it is gold-bearing is not yet determined. In my opinion not more than a few miles at the mouth will be found so. It comes out of a range of high limestone mountains, which are of such recent geological formation as to preclude the idea of gold being found in them.

The rumours thus reported were current in Dawson for a few days, and led to a stampede ; but truth obliges us to say they are untrue. Months ago a little prospecting was done on Moose-Hide, but merely colours were found, and the work was abandoned. Recently only an occasional washing of surface gravel has been attempted. No mining proper has been done on this little watercourse, and whether there is or is not pay-dirt there cannot be affirmed.

Dion Creek, a mere brook giving its waters to the Yukon a short distance above the Klondike River, has not been more than superficially prospected. All sorts of rumours are current concerning it, but if anything better than light prospects have been found in its channel we were unable to obtain any evidence to that effect. It may or may not be worth working. The same observations apply to Deadwood, Bryant, Montana, Baker, and Insley creeks, all small affluents of the Yukon, joining the mighty stream within several miles of Dawson. In this regard, and also as tending to confirm what has been said of Moose-Hide, we quote as follows from the sworn statement of Mr. Alexander McDonald⁴, made in Dawson on the 26th of November, 1897, for presentation to the Government :

On * * * Deadwood Creek, Bryant Creek, and in short all creeks of said [Yukon] District other than Bonanza, El Dorado, Hunker, and their branches, so little has been done that nothing can be said with certainty as to their richness. They are practically unknown quantities.

Mr. McDonald, a Canadian, is one of the best-informed miners of the District, and his interests are of such scope that there is little chance of an important gold-find escaping his attention.

VIII.

GIVING WITH SOMEWHAT OF DETAIL THE TRUTH AS TO THE KLONDIKE AND INDIAN RIVERS.

IT HAS grown customary on "the outside," as folk along the Yukon call the world beyond the splendours of the Northern Lights and the wearying glory of the Midnight Sun, for men to speak of the Klondike and the Indian as though *these* rivers could be ticketed as thoroughly examined, whatever might be thought as to others in the sub-Arctic gold-fields. But here, again, we must place ourselves in opposition to the accepted notion; and to indicate how little known even these important rivers are, we quote from a sworn statement made in Dawson on the 27th of November, 1897, for presentation to the Government, by Mr. Charles Hill, an intelligent miner of the District, whose journeys in the country concerned have been much more extensive than those of Mr. Ogilvie:

I, Charles Hill, do solemnly declare:

That I am a resident of the Klondike Mining Division of the Yukon District, North-West Territories, Dominion of Canada, and have been since November, 1896.

That I am the owner of interests in placer-mining claims in said Klondike Mining Division and in Indian Mining Division of said District.

That I am a miner by occupation, and have been engaged in gold-mining in British Columbia, Idaho, the Birch Creek district of Alaska, and the placers of the North-West Territories.

That I am familiar with winter and summer mining in the Klondike and Indian Divisions, having personally engaged therein and having observed the methods and work of others.

That I have travelled extensively in the region about Dawson, bent on gaining the information a prospector seeks.

That next to nothing is known of the district drained by the Klondike River above the point where Hunker Creek joins the Klondike. Too-Much-Gold Creek and All-Gold Creek, which lie beyond Hunker and are tributaries of the Klondike, are little more than names so far as the miner is concerned. They have not been thoroughly explored and it cannot even be said of them that either has been moderately prospected.

That beyond these tributaries lie others which have not yet achieved even the dignity of names. I have stood on lofty mountains far up toward the source of the Klondike and have seen several such unnamed and untouched streams. Some of them appeared to be fully fifty miles in length; others seemed half as long. It has appeared to me that 125 miles above its mouth the Klondike was as large in volume of water as where Bonanza meets it, and in my opinion, based on personal observation and rough computation of the volume of water at such points as I have visited, the river is 250 miles long; whereas the prospector has not as yet pursued his way as matter of practical prospecting beyond the confluence of Hunker and the Klondike, that is to say, beyond twelve miles above the river's mouth.

That Indian River and its tributaries are less known than the Klondike and its branches. Dominion Creek, Sulphur Creek, Quartz Creek, and other tributaries of which somewhat is known all lie within forty-five miles of the mouth of the stream, and beyond that distance no prospecting has been done. Very little that is definite is known of any of the creeks just named. The prospecting has not been thorough or extensive. From high peaks I have looked well up the Indian, and know that there are, beyond Dominion Creek, branches considerable in volume which have not been explored or named. So, too, below Quartz Creek there are unexplored and unnamed tributaries.

That, excepting a district within a radius of twenty miles of Dawson scarcely anything has been proved in said Klondike or Indian Divisions of said Yukon District; and nothing at all beyond a radius of fifty miles.

Confirmation of the statement that little is known of the Klondike and Indian rivers is negatively afforded by the silence of Mr. Ogilvie. As he says in the preface of his recently issued *Klondike Official Guide*,¹ he was directed by the Honourable, the

Minister of the Interior, to prepare "*a handbook containing the completest possible information*" as to the Klondike. Yet anyone examining the *Guide* must be struck by the poverty of information concerning the Klondike and Indian rivers. Mr. Ogilvie is one of the Dominion's most accomplished and conscientious explorers. His accounts³ of the Lewes, the Tat-on-duc, the Porcupine, the Bell, the Trout Peel, the Mackenzie, and the Peace rivers are detailed and valuable; and in his *Guide* there is no dearth of exact information concerning the district he traversed in reaching the International Boundary. But Mr. Ogilvie is silent as to the Klondike and the Indian to the extent that an explorer should be silent. He did not at all explore the Klondike beyond a point readily accessible, and has never stood on the banks of the Indian; and therefore he does not definitely report as to either stream or the country drained by it. He did not meet during his stay in Dawson anyone who could speak with authority of the country unvisited by himself, and therefore he is chary of hearsay pretending to be definite or thorough.

*Topography and Geology.*⁴

The Klondike is swift, shallow, and exceedingly clear, and near its mouth has a width of less than 200 yards. The bed is covered with coarse gravel, but to what depth is not known, for no attempt has been made to sink a shaft in or near the channel of the stream. No white men have gone to the source of the Klondike, and only two or three have gone more than 100 miles up stream; so that the length of the river is unknown. Probably it is between 200 and 300 miles. The lower reach of the river lies between low, wooded mountains dipping into the transparent waters. Beyond the named creeks the valley broadens into a plain, and further along the mountains creep back to the crystal flood. How the stream fares far away cannot be written.

The general course of the Klondike appears to be from the north-east to the south-west. There are small unnamed tributaries putting into the lower Klondike on its northerly side, but no gold has been found along them. However, the prospecting has been anything but careful. The gold-bearing branches of the river enter from the southerly side, and take their rise toward the east. First comes Bonanza Creek, about twenty-three miles long, joining the Klondike one mile and one-half above the junction of the Klondike and the Yukon. Next comes Quigley Creek, five or six miles long, flowing into the river about three miles and one-half above the mouth of Bonanza. Three miles further up, Bear Creek, about twelve miles long, discharges into the Klondike. Hunker Creek empties four miles above Bear, and is about twenty miles in length. Slate Creek, supposed to be about the length of Bear, meets the river fourteen miles above the mouth of Hunker. Fourteen or fifteen miles beyond Slate Creek is the confluence of Too-Much-Gold Creek and the river. The length of this creek is not known, but it appears to be much larger than Bonanza. Between Too-Much-Gold and the higher stream, All-Gold Creek, which empties about ten miles above the junction of Too-Much-Gold and the Klondike, the river forks—a considerable and wholly unknown stream flowing from the north-east. The length of All-Gold Creek is unknown, but it is supposed to be more than twenty miles. A short distance above All-Gold Creek the river forks again, the main stream continuing to come from a north-easterly direction and the fork putting in from the south-east.

The country drained by these tributaries of the Klondike is all on edge, the stream-valleys being the only valleys, and they being as a rule very narrow. Bonanza Creek makes its way between slopes that leave the miner only 300 to 1,200 feet from rim to rim, and less than 700 feet as an average. Its

famous affluent, El Dorado Creek, eight miles long, is walled by hills having only 200 to 800 feet between their bases. Hunker Creek has a wider valley than Bonanza, and for a few miles above its mouth is not much hampered by the hills, which keep afar for that part of the world. Quigley and Bear creeks have a hard scramble to hold their waters from the base of the hills, but Slate, Too-Much-Gold, and All-Gold fare better. Hills and mountains are wooded with birch and stunted spruce, mainly the latter, and range from low foot-hills to 3,500 feet above sea-level. Dawson, which is near the mouth of the Klondike, is 1,012 feet above sea-level. Indeed, the country of the lower Klondike is so rugged that the eye is startled on surveying it from some commanding peak. Hill crowding hill, mountain jostling mountain, on and on they sweep to the uttermost reach of the vision. It is as though God didn't want a valley there, and suffered the hills to be creased simply because He couldn't see any other escape from a table-land.

These hills and mountains where they bare their rocks show granite as their central mass, with much quartz, considerable metamorphic slates—especially talcose and chloritic slates,—gneiss here and there, and occasionally serpentine. The bedrock of the gold-fields of the Klondike tributaries, so far as shown, is metamorphic slate, and the gravel resting on it has been washed from rocks identical with those one sees in the neighbouring slopes. Concerning the ground with which the placer-miner deals, we quote from the sworn statement of Mr. Alexander McDonald⁵, already mentioned :

The pay dirt on Bonanza Creek, El Dorado Creek, and Hunker Creek averages four feet in depth. * * * The term pay dirt is meant to include so much of bedrock as is worked. The pay dirt rests under gravel, muck, and moss, as follows : On Bonanza Creek there is on the earth's surface about two feet of moss, and between the moss and the pay dirt is a depth of about thirteen feet of muck and gravel, in the proportion of eight feet of gravel to five feet of muck ; on El Dorado Creek the surface moss is about two feet deep, the muck and non-pay gravel between moss and pay are

together about thirteen feet in depth, and the proportion between muck and non-pay gravel is about as $6\frac{1}{2}$ to $6\frac{1}{2}$; on Hunker Creek the conditions in this regard are about as on El Dorado Creek; of the other creeks of said [Yukon] District too little is known to enable me to say anything in general as to depths—they are practically untouched. * * * All of the depth between moss and the lowest known pay point is frozen throughout the year.

Very much less is known of the Indian River Mining Division than of the Klondike Mining Division. The length of the river is unknown, but its course appears to be generally parallel to that of the Klondike, and it enters the Yukon over a coarse-gravel bed, about thirty miles above the junction of the Klondike and the Yukon. It is not so rapid a stream as its neighbour, is somewhat less wide, and near its mouth drops most of its waters into the sands, giving only an inconsiderable volume, visibly, to the Yukon. Five of the branches of Indian River have been named: Dominion Creek, Eureka Creek, Quartz Creek, Ophir Creek, and Nine-Mile Creek. Dominion Creek has two forks, uniting eight or ten miles above its mouth, each about the same in length, and from either source to the Indian measures not less than twenty miles. Its principal tributary, Sulphur Creek, is at least fifteen miles long, and joins it not far from the point of confluence with the Indian. A few miles nearer the mouth, Eureka Creek falls into the river. Its length is supposed to be about twelve miles. Further down, Quartz Creek discharges. It is about eighteen miles long. Ophir Creek, ten or twelve miles in length, unites its waters with those of the Indian below Quartz Creek, and a little nearer the Yukon. Nine-Mile Creek, a small stream, puts into the Indian. All of these creeks excepting Eureka flow from the watershed between the Klondike and the Indian, entering the Indian on its northerly side and pursuing a generally south-easterly course. Eureka Creek flows in on the southerly side of the river.

The country drained by Indian River is, so far as examined, as mountainous as that of the lower Klondike, and the creeks just written of flow through narrow valleys, with wooded hills and mountains much as along Hunker Creek. What has been said of the rocks of the Klondike applies perfectly to the Indian River country, with this change: there is more quartz along the Indian than along the Klondike. In the sworn statement of Mr. McDonald,⁶ already cited, this candid avowal is made: "The pay dirt on * * * Sulphur Creek, Dominion Creek, and creeks other than those aforesaid [Bonanza, El Dorado, and Hunker] is of depth as to which too little is known to enable me to say anything." And he makes a similar observation concerning the depth of muck and non-pay gravel lying above the auriferous deposits. The bedrock of the Indian River placers, where disclosed by natural erosion (for up to the time of our departure from the mines no prospect shaft had reached bottom), is similar to that of the Klondike diggings.

The summit of the main watershed between the Klondike and the Indian has an average height of about 2,500 feet above sea level, and from All-Gold Creek to the head of Carmack's Fork of Bonanza roughly parallels the Klondike, keeping much nearer the Klondike than the Indian. From these Bonanza headwaters what appears to be the main watershed runs southeasterly to the Indian, and a spur strikes from the headwaters of Carmack's Fork and terminates within a mile of the Klondike, forming a watershed between Hunker, Bear, and Quigley, on the one side, and Bonanza Creek on the other. Another spur extends between El Dorado Creek on the one side and Nine-Mile Creek and an unknown tributary of the Indian on the other, thence roughly parallels Bonanza to its mouth, and thence continues to the Yukon, hugging Bonanza closely. The highest peak of the

main watershed is known as the "Dome," and is generally thought to be about 3,500 feet above the level of the sea. Near this peak Hunker, Dominion, and Sulphur creeks take their rise, while in the main watershed extending thence to the Indian, Bonanza, El Dorado, Quartz, and Ophir creeks head.

Extent of the Gold Deposit.

It is very easy to fall into exaggeration of the wealth of "the Klondike." We know from experience the difficulty of gaining reliable information concerning the actual yield, and the probable extent of the unmined gold, of the northern placers. One's first impressions are likely to be very wide of the truth, so prone are miners to talk loosely of their earnings and so loud is the clatter made by a few generously circulating gold-sacks in a small camp with few avenues for the expenditure of wealth. We can, therefore, readily understand how, without any intention to put into his statements a bit of glitter that should not be there, Mr. Ogilvie went much astray in his early reports to the Minister of the Interior; and it is quite in keeping with the superior character of the gentleman that scarcely any of the matter contained in them has been reproduced in his recent work. Unfortunately for the Klondike, however, public opinion in the Dominion rests largely on those early reports, so far as relates to the wealth of claims, as witness this excerpt from a typical leader in one of the most responsible journals of Canada, the *Toronto Globe*:¹

While there is probably much exaggeration in the stories that are brought back from the Yukon, it is only necessary to read the calm official reports of Mr. Ogilvie, the well-known officer of the Geological Survey, to realize that it is equally possible there is no exaggeration in them at all. Mr. Ogilvie's notes read like passages from *Monte Cristo*. Writing on December 9, 1896, he said: "Bonanza Creek and tributaries are increasing in richness and extent until now it is certain that millions will be taken out of the district in the next few years. On some of the claims prospected

the pay dirt is of great extent and very rich. One man told me yesterday that he had washed out a single pan of dirt on one of the claims on Bonanza and found \$14.25. Of course that may be an exceptionally rich pan, but \$5 to \$7 per pan is the average on that claim, it is reported, with five feet of pay dirt and the width yet undetermined, but it is known to be thirty feet. Even at that, figure the result at nine to ten pans to the cubic foot, and 500 feet long—nearly \$4,000,000 at \$5 per pan. One-fourth of this would be enormous. Another claim has been prospected to such an extent that it is known there is about five feet pay dirt averaging \$2 per pan, and width not less than thirty feet. Enough prospecting has been done to show that there are at least fifteen miles of this extraordinary richness, and the indications are that we will have three or four times that extent, if not all equal to the above, at least very rich." This is the language of an official report, not of a claim boomster. It will be observed that he is speaking of Bonanza Creek. These are the claims which are usually spoken of as the Klondike claims. * * * Wealth such as this is national wealth, and the nation should get some advantage from its exploitation. At present there is a fee of \$15 for each claim located. It is evident, however, that this is inadequate. A system of royalties would undoubtedly best cover the case.

And, in passing, it may be observed that in the identical report quoted by the *Globe* with so much commendation and suggesting to it the need of "a system of royalties," Mr. Ogilvie was very much misinformed; for, dismissing the thoroughly impractical multiplication by which \$4,000,000 were figured into one claim, not anywhere in the Klondike country has pay of such amazing richness been found—no, nor elsewhere in this world, so far as records tell.

It is safe to say that up to the beginning of summer work last year all the placers of the Klondike and Indian Mining Divisions had not yielded more than \$2,000,000. We have devoted much time to probing for the figures representative of the output of the various claims, and have to leave a considerable margin for possible hidden gold-sacks to bring the total to the two-million mark. There was in excess of \$2,000,000 in the Klondike region at the close of the sluicing of the dirt mined during the winter 1896-97; but it should be considered that gold dust, coin, and currency to a large value were taken to the Klondike from the Birch Creek, Forty-

Mile, and Sixty-Mile diggings, and that miners who journeyed thither from this side the Chilkoot did not arrive there penniless.

Last summer the total yield was well within \$1,500,000.

The winter work for the season 1897-8 will not yield more than \$6,000,000. Probably \$5,000,000 will prove nearer the output.

Mr. Alexander McDonald, the principal individual mine-owner of the Klondike and the best authority there on the wealth of that district, estimates that when El Dorado and Bonanza and their tributaries are exhausted, rim to rim and summit to base, their aggregate yield will have been about \$50,000,000. No estimate of the wealth of other creeks of the Klondike and Indian Divisions could have any value. Too little is known of them to enable estimates to be made.

Touching the richness of the Klondike placers we quote from a sworn statement obtained from Mr. John D. McGillivray^a for presentation to the Government :

I, John D. McGillivray, do solemnly declare :

That I am residing temporarily in the Klondike Mining Division of the Yukon District, North-West Territories, Dominion of Canada.

That I came here as mining expert of the *New York Herald's* expedition to the Yukon gold-fields, last August, commissioned fairly and fully to investigate the conditions prevailing and to report upon them for the readers of that journal.

That I am a graduate of the University of California, and studied mining in the School of Mines of that institution ; but that my knowledge of placer or gravel mining has been derived largely from practical experience in the mines of California, where I was associated with my father, Joseph McGillivray, who did much to perfect the systems of gravel mining in California which are now standards.

* * * * *

That I have, in my capacity as correspondent for the *New York Herald*, examined a great many of the mines of this District ; have looked carefully into the values of the pay deposits in various creeks ; have estimated the possible wealth of the known diggings ; and have obtained the opinions of most of the best-informed miners and prospectors of the District relative to the presence of pay deposits in other than those parts of the District which have been fairly explored. These inquiries have been made with a view to

forming an opinion as to the actual value and extent of the placers of the Yukon District, especially those about Dawson.

That while the gold-bearing placers of the Yukon District have already been shown to be extensive, they cannot, so far as proved, be said to be very rich, excepting a few claims—less than thirty on El Dorado and less than twenty-four on Bonanza Creek—covering about five miles of creeks; that the pay ground contained in these excepted claims does not exceed 275,000 cubic yards, if the average depth of the pay be taken as one yard and the average width of the pay-channel as thirty yards, and these figures, I believe, are about right; and that a number of other claims—about seventeen on El Dorado and about ninety on Bonanza—are believed to be of good value, and many of them are likely to prove rich.

That the richest claims on Bonanza and El Dorado creeks are not nearly so rich as have been creek claims in the richest districts of Australia, California, and Montana; and that the conditions here, especially the climatic conditions, will ever make the cost of working claims comparatively expensive and profits comparatively small.

That there have been located in the Yukon District more than 3,000 claims—more than 250 miles of creeks; and a very small portion of the territory located—not more than fifty miles—is generally believed to be workable with profit by present methods and with present values—and by “generally believed” I mean generally believed by the miners of experience with whom I have spoken in this regard.

Somewhat more specific is this excerpt from the sworn statement of Mr. Alexander McDonald,² already cited :

On Too-Much-Gold Creek, All-Gold Creek, Sulphur Creek, Dominion Creek, Quartz Creek, Henderson Creek, Deadwood Creek, Bryant Creek, and in short all creeks of said District other than Bonanza, El Dorado, Hunker, and their branches, so little has been done that nothing can be said with certainty as to their richness. They are practically unknown quantities.

So far as known to me, and I am familiar with said creeks, there are not on Bonanza, El Dorado, and Hunker creeks combined, more than twelve claims which have yielded an average of \$35 per cubic yard of the dirt handled during the summer season last past. This is on a basis of working a cut thirty feet wide, taking the very richest of the pay-streak. The pay-streak is narrow, and runs to colours or no colours before the rims are reached, even where the bottom from base to base of hill is less than 200 feet wide.

Prospects and “winter work” indicate that there are on said three creeks about thirty other claims which will yield an average of \$35 per cubic yard of the dirt handled in a summer cut thirty feet wide in the richest portion of the deposit.

So far as known to me after careful inquiry and prolonged travels and inspections, there are about 200 claims in said District which, in the absence of royalty, can be worked under existing conditions and yield expenses but nothing beyond with certainty, and which

could be worked so as to yield fair profit with modification of burdensome conditions as to cost of supplies and absence of modern methods of mining.

Three other expert miners, Mr. Alexander Calder, Mr. Skiffington Mitchell, and Mr. John Lind, in sworn statements¹⁰ fully corroborate Mr. McDonald's language.

IX.

RELATING TO THE QUEST FOR GOLD ALONG SIXTY-MILE CREEK AND THE STEWART RIVER.

THE headwaters of Sixty-Mile Creek are in Alaska;¹ but nearly all of the stream is in Canada, and no mining has been done beyond the Canadian limit. About midway between the Indian and the Stewart this body of water flows into the Yukon, from the west, after a very crooked course² at least 100 miles in length. It strongly resembles the Forty-Mile in character,³ and at one point approaches so near to that stream that it has been customary for miners to reach its worked tributaries by travelling up the Forty-Mile for twenty-six miles⁴ and crossing by land to the sources of Sixty-Mile branches. Since the early nineties⁵ mining has been carried on in the Sixty-Mile country, mainly on two short affluents of the Sixty-Mile—Miller and Glacier Creeks—flowing from the north, and the gold yield⁶ has been about \$200,000. Many a mile of the channels of the Sixty-Mile and its tributaries has not been well prospected, and the district is believed to contain much unmined low-grade alluvial gravel⁷ that will sooner or later be worked. The diggings are abandoned because of

the Klondike, but several who own claims there intend to keep their titles alive* and ultimately to resume gold-washing.

The prevalent belief that the Stewart River has been well explored and much mined is not in shouting distance of the truth. If any white man has made his way from the mouth to the source of the Stewart⁹ we do not know of him, although we have inquired diligently amongst the pioneers of the Yukon; and Dr. George Dawson, the eminent explorer, has had no better fortune, for he reports¹⁰ that no part of the headwaters of the Stewart have yet been prospected "or even reached" by the miners. It is a large stream, putting into the Yukon nearly seventy miles¹¹ above the Klondike, and seems to parallel the Klondike and the Indian; but it must be 400¹² miles long, judging from the volume of its water 200 miles above its mouth, as reported by the only person we have found who has been that distance up the stream—Mr. Charles Houser.¹³ In the words of Dr. Dawson,¹⁴ "scarcely anything is known of the character of the country drained by the * * * Stewart." Bar mining, the only sort yet attempted, was begun near the mouth of the stream in 1885.¹⁵ The extent to which it was carried on might easily be misunderstood by the careless reader of Mr. Ogilvie's recent *Klondike Official Guide*; for comparisons of some loosely framed statements with definite information elsewhere given is essential to understand precisely what he intended to convey. For example, in a recently written chapter he says, referring to the Stewart:¹⁶ "When it was first mined on, many miners took from \$30 to \$100 per day out of the bars along the river, by ordinary rockers." But in order to avoid a misapprehension of the scope of the word "many" the reader should know, as Mr. Ogilvie sets forth in another chapter,¹⁷ that during the years 1885-6 the whole number of miners employed on the Stewart was only forty, and, as he

told in a lecture¹⁸ recently delivered, that the Stewart was deserted on the discovery of coarse gold on the Forty-Mile, in 1886.¹⁹ The stories of results on the Stewart have been sadly exaggerated. Mr. Ogilvie of course knew nothing of the yield of the Stewart's bars as a result of personal observation, and justly acknowledges²⁰ the unreliability of mining-camp hearsay evidence, on which his reports rest. Probably the most trustworthy information on the subject was possessed by the late Mr. Arthur Harper,²¹ who conducted a trading-post at the mouth of the river during the washing of bars thereabout; and this exceedingly scrupulous gentleman, in discussing the wealth of the Yukon placers with one of us, last autumn, declared \$50,000 to be a liberal estimate of all the gold taken from the Stewart up to the abandonment of the diggings. A little computation will show that the average returns to the miners Mr. Ogilvie tells us were employed during the two years concerned will show that the yield was not startling, considering the conditions surrounding life in that savage region. Since the desertion of Stewart River at the close of 1886, no gold has been mined on that stream or any of its affluents. Mr. Henry Ferguson²² and a small party of miners went up the Stewart to the McQuesten, 100 miles above the Yukon, and prospected the bars and banks of the McQuesten for forty miles up that large tributary of the Stewart, in the summer of 1896. Good prospects were found, but there was so much surface water that a shaft could not be sunk deep enough to prove anything, and shortage of food obliged them to desert the country before the cold had made shaft-sinking feasible. Mr. Houser, heretofore written of, reached Dawson last August, after a full year of prospecting on Mayo Creek, a tributary of the Stewart which joins the river 200 miles above the Yukon. Twelve miles up the Mayo Mr. Houser put a prospect shaft to bedrock, and that shaft appears to be the only one

sunk to bedrock in the Stewart River country in all the time preceding our departure for the capital, excepting one on Henderson Creek. He found no gold. Nevertheless, he said his faith in Stewart River remained unshaken; and, after all, one prospect shaft may mean nothing. We have known ten shafts to reach bedrock on one Bonanza Creek claim without yielding heavy colours. The eleventh found the pay-streak, and gave excellent returns of gold. Since these prospectors left the Stewart nothing has been struck. The stories of important gold-finds on that stream are fabrications. We do not intend to intimate that the Stewart is not a promising river, for it is; but that it is about as little known as in the morning twilight of the world. At present about 250 persons are wintering on the Stewart River and Henderson Creek, near the Yukon. Most of them were bound for Dawson, but were driven ashore at the Stewart by the dangers of boating in the ice-jammed Yukon. They are making the best of the situation by prospecting along the lower Stewart and on Henderson Creek. Some say Henderson Creek is a tributary of the Yukon, others declare it is a feeder of the Stewart. If it is a branch of the Stewart it came near escaping that relation, for the junction is on the edge of the Yukon. The Henderson is a two-forked stream, with about thirty miles for its greatest length. At the time we last visited the settlement in the Stewart River Division,²³ prospectors were at a standstill because the surface-water was not so frozen as to enable them to sink to any considerable depth. Colours had been found in surface gravel—nothing that could be considered a good prospect, however. One prospect shaft had got to bedrock on Henderson Creek, but, despite rosy rumours of a fabulous find, nothing better than colours had been found.

X.

BEING A BRIEF SUMMARY CONCERNING
THE PELLY, LITTLE SALMON, AND
BIG SALMON RIVERS.

THE headwaters of the Pelly¹ have not been explored. Dr. Dawson's² journey down the river began at a point in latitude $61^{\circ}, 48', 52''$ and longitude $131^{\circ}, 01', 06''$, and there, in about mean stage, it was a stream 326 feet wide, with a middle depth of seven feet. Thence to the confluence of the Pelly and the Dease³ is 320 miles, measured along the course of the stream. Until Dr. Dawson's examination of the river, practically nothing was known of it, and of course the examination then made was necessarily hasty. Since its conclusion, the Pelly and all its tributaries have been unvisited by white men. How unbroken the solitude of those wilds, is suggested by this quotation⁴ from Dr. Dawson's interesting account of his experience amidst them: "Ten miles above the mouth of the Macmillan we encountered a couple of Indians, father and son, working their way up the Pelly with a small dug-out canoe. They were the first human beings we had met with in the country since leaving the mouth of the Dease River, forty-three days previously." The Macmillan, by the way, joins the Pelly seventy-four miles⁵ above the Yukon, and at the junction is about as large as the main stream⁶. The upper part of the Macmillan has never been explored⁷; and, for that matter, although the Pelly has been shown to have some considerable tributaries, one cannot read Dr. Dawson's report⁸ on that stream without concluding that all of them are, to be quite honest, well-nigh utterly unknown. White men have not gone much beyond the mouths of these streams, and scarcely anyone has done more than see so much of them as

one may see while boating past the points where they discharge. Such information as we have been able to gather indicates that about a dozen miners prior to this winter prospected for gold along the Pelly, and that not more than half the number found better than colours. Mr. Arthur Harper,⁹ whose trading-post near the mouth of the Pelly is yet in existence, estimated that two or three bars had yielded between \$500 and \$750. Dr. Dawson met two prospectors¹⁰ who had ascended the Macmillan for several days, in a boat, and had found no encouraging prospects. His own experience on the Pelly is summed up in this language: "Small colours of gold may be found in almost any suitable locality along the river, and 'heavy colours' in considerable number were found by us as far up as the mouth of Hoole River, in the bottom of a gravel-bed there resting on the basalt." The Hoole¹¹ is 287 miles above the Yukon.

At its mouth the Little Salmon River, which flows into the Lewes on the east side, fifty-three miles¹² above Rink Rapids, is approximately 100 feet wide,¹⁴ with an average depth of three feet. Candidly, this is about all that is known of it. Neither Dr. Dawson nor Mr. Ogilvie appears to have ascended the stream. Dr. Dawson makes no mention of prospecting on the Little Salmon, and Mr. Ogilvie leaves the reader in doubt as to his information; for, whereas in one part¹⁵ of the *Klondike Official Guide* he observes: "It is said that some miners have prospected this stream, but I could learn nothing definite about it," on another page¹⁶ he says: "Big and Little Salmon rivers have also been prospected, with the usual result that more or less gold has been found everywhere." We have been unable to obtain any evidence from the miners of the Yukon showing that anything of value has been found on this stream. When we passed it, recently, two men temporarily there were prospecting a little, but they had found only a few light colours.

Thirty-six miles and a quarter¹⁷ above the Little Salmon the Big Salmon enters the Lewes, also on the east side. It has a width¹⁸ of about 100 yards at its mouth, and a depth of four to five feet. Neither Dr. Dawson nor Mr. Ogilvie has explored this river, but several miners are known to have gone considerable distances up stream, and four,¹⁹ at least, have ascended to its source. It is about 200 miles long. Dr. Dawson records²⁰ that in 1881 four miners crossed the Chilkoot Pass and went, according to their estimate, 200 miles up the stream, "finding a little gold all along its course and meeting with some remunerative river-bars." "This," he adds, "may be characterized as the first discovery of paying placers in the District." The four miners who went to the source of the Big Salmon did so in the summer of 1887, and one of them told Dr. Dawson²¹ that they "found 'fine' gold all along the river, but no good-paying bars." "They were in search of 'coarse' gold," pursues Dr. Dawson, "but did not discover any." Excepting these four miners, he says,²² no persons were at work on the stream in 1887. Nothing of significance has been done there since then. Mr. Ogilvie reports²³ that none of the miners he met could give him any information concerning this stream. In our journey from Dawson to the sea, this winter, we found forty or more Puget Sound men at work on the Big Salmon. Like the miners on Stewart, they were castaways who left home too late to reach their destination, Dawson, during 1897. They had found nothing better than flour gold, but had been unable to reach bedrock, because of inflow of water.

XI.

PRESENTING THE FEW BITS OF INFORMATION EXTANT WITH REGARD TO AURIFEROUS DEPOSITS ALONG THE LEWES AND HOOTALINQUA RIVERS.

THE Yukon above the mouth of the Pelly is known as the Lewes River; and, in that it is the waterway used by all persons who penetrate the Yukon District by way of the Chilkoot or the White Pass, its general features have been too much exploited for comment here to serve our purpose. But there seems to be misunderstanding of the extent of mining operations along the stream, so that a mustering of the facts as to the work of the miner appears desirable.

Dr. Dawson thus speaks¹ of the earliest prospecting on the Lewes:

The first white man who crossed from the coast to the headwaters of the Lewes appears probably to have been one George Holt, who did so with the object of prospecting the country. The date of Holt's journey was, I believe, 1878. He was accompanied by one or two Indians, and crossed by the Chilkoot or by the White Pass to the head of the Lewes. He followed the river down to the lower end of Lake Marsh and walked over the Indian trail thence to the Tes-lin-too [Hootalinqua], returning to the coast again by the same route. On his return, he reported the discovery of "coarse gold," but none of the miners who afterward prospected the region mentioned, have been able to confirm his statements in this particular.

* * * * *

Some years later, in 1880, a prospecting party of nineteen men was organized at Sitka, under the leadership of one Edward Bean. Amicable relations were established with the Chilkat and Chilkoots through the kind offices of Capt. Beardslee, U.S.N., and the Chilkoot Pass was crossed to Lake Linderman. The party had, by this time, increased to twenty-five in number. Boats were built on Lake Linderman, and on the 4th of July the prospectors set out down stream. * * * No encouraging "prospects" were met with at this time, though Steel [a member of the party] states that he found bars yielding at the rate of \$2.50 a day in a small stream which joins the Lewes fifteen miles above the canyon.

It is not certain that anything further was accomplished until 1886. Dr. Dawson says² that "possibly" a little mining was done on the Lewes in 1884; but we have been unable to find evidence more definite. In 1886³ gold was found on Cassiar Bar, which lies about twenty-seven miles below the junction of the Hootalinqua and the Lewes. There is much doubt as to the yield of this bar. Dr. Dawson heard it said⁴ that "in some cases" the output was "\$30 a day to the hand," and that "gold to the value of many thousands of dollars" was obtained from it, chiefly in 1886. Mr. Ogilvie reports⁵ that when he passed the bar in August, 1887, four men were at work, and the diggings were about exhausted. These four, he adds, are the miners who were washing gold there in 1886. He was told that in 1886 they had taken "\$6,000 in thirty days" but that in 1887 "\$10 per day" was all they could get. It does not appear, however, what was the average of their earnings for the whole time they worked, nor what the total yield. Pioneer miners with whom we have spoken think the yield of the bar in both years was not in excess of \$5,000. On our journey hither we found one castaway at work on otherwise deserted Cassiar. He was getting flour gold at the rate of fifty cents a day, consuming provisions worth five times as much, and hoping for better days.

Dr. Dawson's summary⁶ as to the Lewes is as follows: "Though some small bars have been worked on the upper part of the Lewes, and 'prospects' have been obtained even in the stream flowing into Bennet Lake, paying bars have been found in this river only below the mouth of the Tes-lin-too [Hootalinqua]. The best of these are within a distance of about seventy miles below this confluence, and the richest so far has been Cassiar Bar. * * * All along the Lewes below the Tes-lin-too many bars occur which, according to the reports of prospectors, yield as much as \$10 a day. * * *

Bars of this kind are, however, considered scarcely remunerative at present." In weighing this summary it is well to keep in mind what Mr. Ogilvie has said of mining-camp reports; and that the mining population of the vast Yukon District when Dr. Dawson's report was prepared was only about 250,⁷ the camps on the Stewart and the Forty-Mile included, so that the prospecting supporting estimates of the average yield per day of "many" bars could not have been sufficiently extensive, in a country fraught with innumerable difficulties, to give to them much value.

Mr. Ogilvie sought for gold during his examination of the Lewes and the lakes which are its headwaters. Until after he had passed Lake Labarge, however, colours were found only in two places. Six miles below the lake "many colours to the pan" were found in a bar, and Mr. Ogilvie observes⁸ that from that point to the Boundary colours may be washed "anywhere on the river." "Anywhere" probably is too broad a word. We know of pans of Lewes gravel that have shown no colours; but it is doubtless true that some of the bars of the Lewes and the Yukon proper give colours readily.

When Dr. Dawson wrote his report on the Yukon District and British Columbia,⁹ in 1887, he was moved to say¹⁰ of the Hootalinqua: "This river still remains to be explored and mapped, and as it drains a country with a rather dry climate, the area of its basin is probably considerable. It has been prospected to some extent by a few miners, but, it is difficult, from the accounts which they are able to give, to ascertain much of a definite character respecting it." Mr. Ogilvie, like Dr. Dawson, attempted no ascent of the stream; and whilst it is true that Mr. Arthur St. Cyr recently made a track survey of the Hootalinqua at direction of the Canadian Government, he has not dealt with the stream from a point of view affording any light on its mineral wealth. The value of the stream, accord-

ingly, can only be gauged at present from general knowledge of the region and the tales of a handful of wandering prospectors. It should be said that Mr. St. Cyr's survey shows the river to be about 135 miles long, and that its confluence with the Lewis is about 330 miles¹¹ above the Klondike River. Dr. Dawson reports¹² that three miners whom he met at the mouth of the Hootalinqua had spent most of the summer of 1887 on the river. They told him they had found fine gold all along the stream, and impressed him as having done "fairly well." No bedrock prospecting¹³ ever has been done there, and not more than a dozen miners attempted more than occasional panning of bar gravel in all the years prior to 1897. In the autumn, last year, some of the pilgrims bound for the Klondike were obliged by stress of weather to go into winter quarters this side the Pelly; and several of them are "killing time" sinking shafts on the Hootalinqua. When we passed them, early in January, no shaft had reached bedrock, and nothing more valuable than average colours were reported.

Accomplished miners who have considered the relation borne by the Hootalinqua to the Cassiar country believe important placer finds will be made on that stream; and some think well of the outlook for auriferous quartz along the Lewes: but it is altogether erroneous to hold that men have definite knowledge of the future of mining on either stream.

XII.

RESPECTING THE UPPER LIARD, FRANCES,
AND FINLAYSON RIVERS AND LAKES
FRANCES AND FINLAYSON.

SINCE Dr. Dawson's exploration of the North-West no attempt has been made to examine that stretch of the Upper Liard River which lies in the Yukon District; and the report of Dr. Dawson¹ shows that the effort then made to gather authentic information concerning it yielded unsatisfactory results, save for the forty-five miles² personally observed by the eminent geologist. Even the length of this important affluent of the Mackenzie remains undetermined; but Dr. Dawson found³ the Liard, just above the mouth of the Dease, 840 feet in width, and carrying in midsummer 19,000 cubic feet a second. It is known that gold has been washed on the stream, but the information on the subject is very scant. In 1874⁴ Cassiar miners worked some of the bars of the Lower Liard, and ascended the river a long distance. In 1875⁵ Sayyea Creek, which puts into the river about fifty-five miles above the mouth of the Frances, was slightly mined, and good prospects were found. The gravel bars and the shores of the Liard near the mouth of the Frances were found by Dr. Dawson⁶ to be "almost half composed of rolled quartz pebbles, which have evidently been derived from veins traversing soft schistose rocks." He observes that "the great quantity of such vein material present in this district may be regarded as a favourable indication in respect to mineral development," and adds: "Some small bars have paid to work along this part of the river, and gold is also found in some layers of the older rocks along the canyon [near the mouth of the Dease] and above it, where wages at \$4 a day can be made. The amount of cover which

it soon becomes necessary to remove in following the paying layers, has prevented extensive mining, but probably these gravels might be advantageously worked as a whole, by sluicing or by the hydraulic method." Beyond this only the vaguest mining-camp rumours are available.

The Frances and Finlayson rivers and the lakes bearing the same names have been examined by Dr. Dawson. About ninety miles⁷ above the point where it joins the Liard, the Frances River heads in Frances Lake. Its average midsummer width⁸ near the point of discharge is 600 feet, and its current about four miles and one-half an hour. Its tributaries are unexplored.⁹ Dr. Dawson says nothing to suggest that gold has been found along this stream. Frances Lake, 2,577 feet above the sea,¹⁰ is more than thirty miles long and several miles wide, "held in," Dawson concludes,¹¹ "by morainic accumulations." Continuing, he observes:¹² "In general appearance the rocks of Frances Lake very closely resemble those from which the rich placer gold deposits of Dease Lake are derived, and they are probably of about the same age. Several 'colours' to the pan were obtained from surface gravel at the mouth of Finlayson River, which struck me as specially promising in aspect, and there seems to be no good reason why some of the streams flowing across the schistose rocks into the lake or its vicinity should not prove to be richly auriferous. This entire district well deserves careful prospecting. After my return to the coast in the autumn of 1887, I ascertained from Charles Munroe that he and some other miners had actually done some prospecting in the vicinity of the lake at the time when the Cassiar mines were yielding largely, and the more enterprising men were scouring the country in search of new fields. He reached the lake from Cassiar by the same route we had followed. On comparing notes we found that he had worked for a short time at the mouth of the

Finlayson, where he found the gravel to pay at the rate of from \$8 to \$9 a day." Some quartz¹³ taken from the lake shore has been assayed, and showed traces of gold. Finlayson River, the short connecting stream between Lakes Frances and Finlayson has not been known to yield gold, save as already mentioned; but appears to have been visited by scarcely any one. The lake¹⁴ in which it rises is nine miles and one-half long, irregular in form, and 3,105 feet above sea-level. "It may," says Dr. Dawson,¹⁵ speaking of Lake Finlayson, "be regarded as occupying the summit of the watershed between the Mackenzie and the Yukon, as no stream of importance enters it. * * * The distance from the head of the lake to the nearest point on the Pelly is about fifteen miles." Of the rocks of the region Dr. Dawson says,¹⁶ amongst other things: "Quartz-vein stuff is everywhere very abundant, and on the terrace overlooking the Finlayson, on the north side, three miles below the lake, a large mass of quartz occurs in place. * * * A few specimens were collected, but on assay proved to contain neither gold nor silver."

XIII.

EXPLAINING WHY THE COPPER AND WHITE RIVERS WERE NOT INCLUDED IN THE LIST OF GOLD-BEARING STREAMS.

IN this account of the gold-fields of Alaska and the Yukon District nothing has been said of Copper and White Rivers, because no authority has been found for any of the alluring stories of gold-

discoveries on them. The late Mr. Arthur Harper, who, little though he knew the White River, knew it better than any other white man has known that Yukon affluent, and who journeyed¹ fifty or sixty miles up the stream, said² in Dawson last summer that if gold had been found on the White he had no information to that effect; and Mr. Davies, the only person of whom we have heard who has prospected the headwaters of the White, wrote³ recently that not even a colour was washed there. We have no knowledge that any white man has gone from the mouth to the source of this river,⁴ and no mining has been attempted anywhere in the district it drains. The length of the White must be considerable; for at its mouth the river is 200 yards wide,⁵ and it tosses its large volume of water into the Yukon, ten miles above the Stewart⁶ but from the opposite side, with force⁷ enough to drive the ashén flood well toward the farther shore of the receiving stream. Gold has been sought but never found near the mouth of the Copper, and Mr. Davies, the only living white man who has journeyed from the source to the mouth of the river, declares⁸ positively that surface prospecting all along that stream failed to show any trace of gold. Like the White, the Copper remains to be explored. A few men have seen its upper waters and the reach from its mouth to the glacier (twenty miles above) under which it pours; but of the long stretch between, only the testimony of Mr. Davies is available. Where the Copper gives itself to the sea it breaks into shallow channels⁹ separated by sand bars, and has a width of more than two miles. Its source¹⁰ is hard by a great glacier in which the Chittystone, the White, and the Tanana take their rise, it traverses an exceedingly savage country, is for much of its course utterly unnavigable by any sort of canoe, and has a length of not less than 400 miles. The White has its source in Alaska, but most of its course lies in Canada; whereas the Copper is all in Alaska.

Whilst no gold has been found on these streams, they are nevertheless worthy of careful examination. Mr. Harper¹¹ observed indications of copper on the lower White, and Mr. Davies¹² found placer copper on the upper White and at several points along the Copper. Mr. John Dalton, also, has found copper on the latter stream.

XIV.

BRINGING TOGETHER THE DATA BEARING ON THE PRESENCE OF AURIFEROUS QUARTZ IN PLACE.

IT is to be regretted that truth compels denial of the several pretty stories showing discovery of lodes of rich gold-bearing quartz along the Yukon. Reduced to their lowest terms, the facts are these :

Prior to the washing of gold on Bonanza Creek, a vein of what was believed to be auriferous quartz was found on the Alaskan reach of the Forty-Mile and another below Birch Creek. Samples of the quartz were sent to San Francisco¹ to be assayed. No trace of gold or anything else of value was found in either lot.

About the same time Mr. G. C. Hoffmann,² of the Geological Survey of Canada, assayed four specimens of quartz taken from the Yukon District, with the following results: Specimen from bank of the Yukon, opposite the Klondike—gold, a trace; silver, 3.64 ounces to the ton; specimen from near the foot of the Forty-Mile—gold, a trace; silver, 38.64 ounces to the ton; specimen from further down the Forty-Mile—neither gold nor silver; specimen from near the Chandindu—gold, a trace; silver, .117 of an ounce to the ton. It should be

considered, however, that the assay appears to have been confined to a single specimen not known to be average,³ in each case, and that none of the specimens came from an even roughly defined⁴ lode. It is not uncommon for such an assay to bear very little relation to the value of an ore body, as witness the case of mines in the Wynaad⁵ where individual assays have given more than 200 ounces of gold to the ton, whereas milling on a working scale has rarely given better results than from three to five pennyweights. Moreover, as observed by Mr. J. W. Anderson:⁶ "That a lode carries gold and silver or any other valuable metal in some form or other, is not sufficient data to lean upon in the estimation of its worth. Oftentimes the gold, for instance, is distributed in the form of very fine powder invisible to the eye and covered with a rusty film (due to sulphides or arsenides, oxide of iron or manganese, and sometimes to sulphate of copper and iron); and in consequence, though the 'assay' may be favourable, the extraction of the precious metal from the ore by the amalgamation is not satisfactory, as the mercury 'sickens' or 'flours.' Again, the value of a body of ore, though it may be rich in precious or valuable metals, depends in a measure upon the nature of the other constituents, especially when the ore has to be smelted. Antimony or arsenic, in not very great quantities either, may render an otherwise valuable ore useless so far as profitable smelting is concerned." And, to quote Mr. L. R. Grabill,⁷ "from one-half an ounce to one ounce of gold per ton of ore is required *under ordinary circumstances* to pay the expense of mining and milling" although less is required under the favourable circumstances of a large ore body and cheap treatment, as on Douglas Island, for instance.

Soon after the Klondike came into notice Captain John Healy⁸ found indications of gold in a mountain opposite Dawson and dipping into the Yukon. A tunnel was drifted a short distance into the quartz,

but the results were not of a character to justify development.

Captain George Ellis, one of the most accomplished miners of the Klondike, recently located a quartz lode in the mountain on the left bank of El Dorado Creek. No trace of gold is visible in any of his specimens;⁹ and no assay had been made when we left Dawson, for the reason that the only assaying outfit on the Klondike is in possession of the Alaska Commercial Company, and up to the close of last December had not been unpacked for use. Captain Ellis, when we last spoke with him, was holding his specimens, awaiting the setting up of the Alaska Company's outfit. He thought the ore looked as though it contained gold, but said he felt no certainty in that regard.

Some good-looking quartz strikes well into view along the watershed between the Klondike and Indian rivers, especially in the Dome; but no gold can be seen, even with the aid of a glass, in the croppings there, and no assays have been made.

The only specimens showing gold to the eye are not known to have come from a lode nor indeed, from Alaskan or Canadian "stringers." They may have traveled from South Africa or California, and not in the grasp of a glacier, necessarily, for the speculator is abroad in the land, consider.

Until more is known of the Yukon country it will not be safe to say much as to auriferous quartz. Scarcely any prospecting for gold-bearing quartz has been done there, and there are not in the region more than a few miners who are qualified to prospect for such ore. It is true that quartz is scattered abundantly throughout those portions of the Yukon District which have been explored and along the Yukon River for a long distance after it enters Alaska; but this may or may not be significant; for, after all, quartz is the commonest rock in the universe. However, in the Klondike and Indian Divisions, along the Forty-Mile, and in some other

districts the quartz is elbowed by slaty rocks suggestive of the precious metal ; and the developments in all the Cordilleran belt and especially the quartz-mining in British Columbia and along the Alaskan coast, are of a character inviting careful prospecting of the Yukon region. We do not mean to speak discouragingly of the outlook, but to place our testimony in opposition to the rumours which have represented much as known, whereas next to nothing is known.

XV.

REVERTING TO AN EARLIER STATEMENT,
 NAMELY, THAT THE NORTH-WEST RE-
 MAINS WELL-NIGH UNKNOWN.

CONSULT your map, now, and observe over what a mighty domain this brief survey has taken us ; consider that only a few hundred miners have been toiling about in those pathless wilds, and they ill-equipped for dealing with the indescribable difficulties of exploring them ; bear in mind that as a rule even the streams included in our list of gold-bearing creeks and rivers are scarcely more than known to exist and have not been followed from mouth to source, much less carefully prospected ; keep in view that there are thousands of miles of rivers and millions of acres of watersheds in those forbidding lands which are utterly unexplored ; and then say whether the man who runs on and on defining the boundaries and values of the "gold belt" of Alaska and the Provisional District of Yukon ought to be taken seriously.

It must be concluded by thoughtful minds that from a practical standpoint very little has been proved, and that what these vast regions preëminently require in our day is thorough prospecting, unhampered by illiberal laws and senseless regulations. It should not be assumed that because "colours" have been found here and there in an immense territory a time has come when Government can afford to withdraw from the prospector its most earnest encouragement of his labour. Colours are only valuable as indicia. Of themselves they prove nothing, eager though the miner is to find them; for gold is found in some quantity in every land beneath the stars, and colours are obtainable in many a district wherein mining will never be carried on. One can wash colours along the Rhine, yet the gold output of that river since the earliest ages cannot be regarded as considerable;¹ so, there are rivers in Portugal running over sands yielding colours, but the miner regards them as of no value;² and it were hard to find a stream in India³ to grudge a man a colour, although it were as hard to find a stream there rich enough to yield more than a few pence for a day of industrious panning. The experience of British capital in the Wynaad is indicative of the imprudence of taking it for granted that the finding of gold is necessarily the finding of gold in quantity worth winning. "In 1827," relates Mr. J. A. Phillips,⁴ "Mr. S. Young stated that fine specimens of gold had been found to the west of the Nilgiri mountains in the beds of various streams, and in 1830, Mr. F. H. Barber, who was examined before the Lords Committee on East Indian affairs, asserted that gold was obtained not only in Coimbatore, but throughout the tract of country lying west and south of the Nilgiri and Kunda mountains. He had often witnessed the process of gold-washing, and estimated the area over which the soil was impregnated with gold at 2,000 square miles." Some inquiries followed, and

in the end England sunk four millions and a half sterling⁵ in the Wynaad. Scarcely any of the companies then investing survive, the results having been uniformly disastrous, and the yield of twenty years of mining has been estimated at less than 18,000 ounces⁶ of gold. "The Indian Gold Mines Company, Limited, in 1892, crushed 11,125 tons of quartz," observes Mr. Henry Louis,⁷ "and got ninety ounces of gold!" Instances could be multiplied showing that the finding of "colours" or even "fair prospects" does not of necessity indicate value. In the case of the streams of Alaska and the Yukon District, colours may turn out to mean even less to the miner than colours usually mean; for whilst the best pay of the Yukon placers is found in ancient stream channels antedating the glacial period the conclusion of Dr. Dawson⁸ is that "the greater part of the 'fine' gold found along the river-bars and banks of the larger streams in the Yukon District is doubtless proximately derived from the gravels and other superficial deposits in which these streams have re-excavated their beds since the period of glaciation." And he adds: "By the general dispersion and intermixture of these materials, composed of the *debris* of the older rock formations, it is even possible that the existence of a few comparatively limited areas of great richness might account for the widespread auriferous character of the alluviums of the Upper Yukon basin." So that these colours may be indicative of a lot far to the south but in the course of the great Cordilleran glacier, rather than of a pay-streak ten or twenty feet below the modern channel yielding them.

It is hoped what has been said suggests the thought that the 141st meridian does not divide the good opportunities from those which are not good. We submit that Alaska offers as promising a field for the prospector as the Yukon District, and that if the conditions imposed by Government are more

difficult in Canadian than in Alaskan territory it is unreasonable to believe that prospecting will progress so vigorously in the Yukon District as in Alaska, when men may in a few hours go from Dawson across the line. Miners care little under what flag they toil, but are sensitive of governmental rules bearing on their labour. The army of prospectors trails hither and thither where the rainbow seems most beautiful—to California, to the Fraser, to Australia, to Montana, to South Africa, to Colorado, to the Klondike; but it knows the pot of gold when it sees it, and cannot be held by colours, nor checked by meridians unmeaning in geology. If the Canadian gold-fields are to be developed promptly nothing should be done by Government to encourage an earlier development of the gold-fields of Alaska.

XVI.

SETTING FORTH THE RELATION OF THE CLIMATE ALONG THE YUKON TO THE WORK OF THE MINER THERE.

THE Yukon country has remarkable variations of temperature. Last July the mercury registered as high as 90° in the shade in Dawson,¹ and late last November a spirits thermometer indicated 64 degrees below zero on Bonanza Creek.² In Circle City³ the variation has been from 100° in the shade to more than 70° below zero—how much more could not be accurately determined. At Forty-Mile, Perry Davis's pain-killer has been seen in solid form, and on the lakes near the Chilkoot -60° has been experienced. Almost anywhere along the Yukon

there are summer days as oppressive as in the tropics, and the winters yield lower temperatures than any Nansen experienced in Greenland, or in his more recent Polar explorations. However, there are times as delightful as the autumn in Acadia; but they are wonderfully brief. One exclaims, "How exquisite!" and lo! they are gone. The glory of the golden-tinted birches, the sparkle of flashing waters, and the radiance of the lingering sun die with amazing suddenness, and the earth puts on a shroud of snow. In what is called the summer about Dawson (June, July, August, and September) the mean temperature is about 65° , and in what is termed the winter (all the time that is left) it is approximately 15° below zero. In midwinter the day is four hours long. In a land with such a climate and saddled with soil that never thaws if it can help itself, the outlook for the farmer is not conspicuously bright, even though a few stunted potatoes have been nursed into being at Forty-Mile and further up the Yukon. Doubtless man could raise bananas on an iceberg if he were to try hard enough; but doubtless they would be pretty expensive bananas: and, in the same way, we suppose, some good gentleman will make figs ripen and violets bloom on the Arctic Circle; but the fortunes which will be earned at farming on the middle Yukon within the next dozen years will not unsettle the money markets of Europe or America.

The climate divides placer mining in Yukon gold-fields into two distinct classes—summer mining and winter mining, the characteristics whereof will be explained in the succeeding chapter. It also makes prospecting more difficult than elsewhere on the earth, Siberia possibly excepted. The difficulties which beset the placer prospector, about Dawson, for example, are well expressed by the accomplished expert, Mr. McGillivray,⁴ in this portion of his already-cited sworn statement:

Prospecting cannot be done here with the ease that governed in Australia, California, or most of the other gold-fields of the world. A man here will accomplish no more in a year, at present, than the California prospector accomplished in a few weeks. In order thoroughly to prospect any creek here, as matters stand, the cold season must be taken as the time for work, because surface washing proves nothing and holes cannot be put to bedrock in summer without elaborate pumping appliances. Two men must go together; they must take with them food enough to last several months, a tent, robes, tools; they must carry their outfit on sleds, and to reach any creek not now located must travel a most difficult country about fifty miles from Dawson, the only supply point; they must, when at their destination, spend ten days or a fortnight in preparing for work; they must then, in order to determine whether there is pay in the creek, sink a line of shafts across the creek bottom at intervals of twenty to thirty feet, for, whereas the pay-channel may be struck through the first shaft, it may require half a dozen shafts to prove its whereabouts or demonstrate its absence; they must devote ten to thirty days in sinking each shaft, hence a whole season may be lost in sinking at one or two points without success. And when the surface water returns again, the work must be abandoned.

In Australia and California a man with pick, shovel, and pan could, in the days of shallow-placer mining, prospect in all seasons, was nearly always within easy reach of supplies, and could prospect many miles of creek in a few weeks; for there the ground was not frozen and was not covered with muck, and the pay was in most cases found along the present streams, something that is not true here.

The gold in all creek claims here is mined from what is called a pay-channel, or, sometimes, two pay-channels. The pay-channels do not follow the lines of the present streams at all, though confined by the same walls; and prospectors endeavouring to locate the pay are in no way guided by the course of the present streams nor assisted by modern erosions, except that in summer they may find evidence that there is a rich pay-channel, in the presence of gold in the bed of the stream, washed from such pay-channel; but in order to find the deposit the prospector must wait until the surface water is frozen, that shafts may be sunk. The ground everywhere is covered with moss and muck to a depth of from five to twenty feet.

Along the same line, and also touching the absence of roads in the Yukon District, is this excerpt from the sworn statement of Mr. Hill,⁵ likewise heretofore cited:

There are no roads in said [Yukon] District—not even in the village of Dawson. In the warm season there are trails of the rudest sort on the principal creeks [of "the Klondike"], and owing to the presence of surface water and deep moss these trails are as a rule mere zig-zag lines through muck, where the traveller flounders painfully. The progress beyond Bonanza and Hunker and their tributaries is the labourious progress through a wilderness of woods, with

deep, wet moss everywhere under foot. Men who go out to prospect in the warm season have to carry on their backs their tools, food, and blankets; and travelling under the circumstances is so slow and labourious that only strong men dare attempt it, and few men succeed in getting very far from Dawson. Prospecting here means sinking shafts through frozen muck and gravel to the depth of twelve to thirty feet. Very little can be accomplished with the quantity of food a man can carry on a journey even thirty miles from Dawson; and there are no supply stations nearer the prospect grounds than Dawson.

In winter, travelling is easier, the earth being covered with snow; but the temperature ranges far below zero—often 40° and 50° below, and exceptionally 70° ; and there is no shelter after the proved creeks have been left behind.

In the case of the quartz prospector it should be considered that the presence of thick growths of trees and deep carpeting of moss seriously hinders him in summer, and that in winter he has the additional embarrassment occasioned by snow. Moreover, climatic conditions in remote ages have given him a task he may never be able to perform. Those who fancy one may shoot an arrow into the air at almost any point along the Yukon and find an auriferous quartz lode have a great deal to learn. The presence of rich placers is not necessarily a sign that valuable gold-bearing quartz lodes are at hand; for it may be that the placer gold has been ground from quartz of so low a grade as to be valueless with the processes man brings to bear, or, if otherwise, it may be that the lode of which it once was part lies in some very different latitude and gave its treasure to a glacier.

XVII.

DESCRIBING GRAVEL MINING ALONG THE
YUKON AND GIVING THE COST OF
EXTRACTING GOLD.

THE methods and costs of working the auriferous gravel deposits of the Yukon country may be gathered from what has been said¹ of the strata of muck and non-pay gravel above the pay-channels and from the following sworn statement² of Mr. McDonald, prepared for presentation to the Government :

I, Alexander McDonald, do solemnly declare :

That I am a resident of the Klondike Mining Division of the Yukon District, North-West Territories, Dominion of Canada,

That I am the holder of several placer-mining claims in said District, both in the Klondike and the Indian Divisions thereof.

That I am a miner by occupation. Since 1880 I have been engaged in the business of mining, having mined within that period in Colorado, on Douglas Island, in the Forty-Mile Division of the Yukon District, and, since September, 1896, in the Klondike and Indian Divisions of the Yukon District. My experience has been mainly confined to dealing with the precious metals, gold especially.

That in said Yukon District I have had experience at mining for gold in summer and winter, have worked in, and had charge of, placer mines, and am familiar with methods pursued in said District, the cost of mining therein, and the yield in general of the mineral belt thereof.

That what is known in said District as "summer work" begins in June and ends in about the middle of September. Not much is accomplished in June, and the September work is uncertain.

That "summer work" consists in opening pits or cuts [open-cast mining] and sluicing the gravel.

That all of the deposits between moss and the lowest known pay-point is frozen throughout the year, and this necessitates exposing surfaces for thawing by the sun's heat in summer working, and leads to corresponding slowness and difficulty in the working of pits. The muck thaws three inches a day, as an average ; the gravel, about ten inches.

That my experience in mining in said District and my observation of the mining by others in said District convince me that an effective bedrock drain on Bonanza Creek would have to be at least 2,000 feet long ; on El Dorado Creek, 1,000 feet.

That there are not any steam pumps in the District aforesaid, nor any electrical appliances whatsoever for use in drainage of summer pits. The rule is for the claims to be drained by hand pumps of the most primitive order. There is not enough water available on more than a few claims to run water-power pumps.

That the grade of the known creeks of said District is so slight that in damming water to a height requisite for ordinary sluicing, water is backed 200 feet.

That during the last season of "summer work" \$1.50 an hour was the universal price of ordinary unskilled labour in this District. The better labourers commanded \$2 an hour. The working day averaged ten hours of labour.

That the cost of lumber, undressed, averaged forty cents a board foot, on the claims.

That, as an average, 100 sluice-boxes are used on every claim worked as summer diggings, with dimensions as follows: length, twelve feet; at top, ten by eleven inches; at bottom, ten by thirteen inches, the ten in each instance representing depth.

That seventy-two sets of block riffles per claim are used during the "summer" season, as claims are worked at present in said District; and these cost as an average \$5 a set.

That the cost of sluice-boxes, riffles not included, averages \$25 a box.

That the cost of setting a line of sluice-boxes and keeping said line set through the summer, averages \$2,000.

That the cost of building a rough dam sufficient for the ordinary working of the average 500-foot claim in said District is about \$1,000.

That the cost of constructing a waste-ditch on claim No. 30, El Dorado (one of the claims of which I am a holder), was about \$1,200. I think it an average ditch.

That the cost of handling the dirt, "summer working," from the ground-sluicing to the clean-up, averages (labour bills) \$5 a cubic yard on the entire quantity moved.

That the cost of pumping for drainage of summer pits 400 feet long by thirty feet wide, averages \$72 per twenty-four hours.

That wheelbarrows cost \$25 apiece; shovels, \$3.50 apiece; mattocks, \$5 apiece; blacksmiths' portable forges, about \$200 apiece; average weight of grindstones, about \$35 apiece; hammers, sixty cents a pound; saws, \$5.50 apiece; nails, forty cents a pound; rope, fifty cents a pound; gold-scales of average capacity, \$50 a pair; quicksilver, \$1.25 a pound; black powder, \$1.25 a pound; fuse, two cents and one-half a foot.

That what is known in said District as "winter work" begins in September and ends late in July. In September the work is preparatory to sinking and drifting; after May 1st, it is wholly sluicing.

That said "winter work" is what is known as drift mining.

That because of the frozen character of the dirt, as aforesaid, it is the practice to thaw the dirt to be handled—first by means of wood fires to release it from the breasts for hoisting to the surface, and again by means of the spring-sun's heat to free the gold in sluicing.

That a fire banked twenty-five feet in length by two feet and one-half in height, one-half a cord of wood being used, thaws about five cubic yards of gravel as it lies in the deposit.

That the wood used for such fuel costs as an average \$25 a cord, delivered at the mouth of the shaft

That the cost of sinking untimbered shafts four by six feet surface dimensions, is about \$10 a foot.

That the cost of handling dirt from shaft sinking to clean-up, "winter work," averages (labour bills) \$12 a cubic yard.

That in drift mining in said District it is impossible with present methods properly to clean the bedrock; and, in that the richest pay is on bedrock or in bedrock great losses ensue.

That the cost of a cabin twelve by fourteen feet, ground dimensions is about \$600. Such cabin ordinarily houses three miners.

That in summer it costs twenty-five to thirty cents a pound for transportation of supplies from Dawson to the mouth of El Dorado Creek, fifteen miles; to the thirty-sixth claim above the mouth of El Dorado Creek and on said creek, thirty-five cents; to the thirty-fifth claim above Discovery on Bonanza Creek, thirty-five cents; to Hunker Creek, fifty cents.

That in winter it costs ten cents a pound for transportation of supplies from Dawson to the mouth of El Dorado Creek; and other distances proportionately.

It should, perhaps, be explained that Mr. McDonald's estimates are based on experience along Bonanza and El Dorado creeks. Not much work has been done elsewhere in the Yukon District, save on Hunker and Sixty-Mile creeks, where costs are somewhat higher than on Bonanza and El Dorado. Naturally the proximity to Dawson of Bonanza and its tributaries gives those streams some advantage. For example, last summer the charge for carrying supplies from Dawson to Dominion Creek was \$1 to \$1.50 a pound.

Strongly corroborative of the statements of this responsible miner are the sworn declarations of three other pioneer and practical miners of the Klondike (like him Canadians, and like him men of large experience in gold-washing), Messrs. Alexander Calder, Skiffington Mitchell, and John Lind, and the sworn statement of Mr. McGillivray, the able expert on gravel mining, all of which documents we have filed with the Minister of the Interior.

For the year 1897^a the Alaska Commercial Company and the North American Trading and Transportation Company—the only trading concerns that have thus far succeeded in getting supplies to the Yukon placers, transported 600 or 700 tons of supplies to Andreafski, 300 tons to Rampart City (Minook Creek), about 300 tons to Fort Hamlin, 400 tons to Fort Yukon, 80 tons to Circle City, 1,500 tons to Dawson, and probably cached considerable quantities at points along the lower Yukon from which no definite information has been received. Nearly all of these supplies consisted of food-stuffs. Such other supplies, aside from live cattle, as were taken into the Yukon country last year were, with the exception of about 100 tons, transported over the Chilkoot or Skaguay trail, and thence adown the lakes and rivers. The cattle (more than 200 head) were driven over the Dalton trail from Chilkat to Fort Selkirk, there slaughtered, and thence conveyed in boats and on rafts to Dawson. The excepted hundred tons were carried in the May West and the St. Michael, tiny river steamers, up the Yukon from the sea. The St. Michael got no further than Circle City, and the May West seems to have been caught somewhere below Fort Yukon.

The two trading companies adhered throughout the year to a scale of prices adopted at the beginning of the season, and were not tempted by the scarcity of supplies or the cost of getting freight to Dawson by way of the upper Yukon to traffic in the needs of the men of the country. The prices charged by them in Dawson are sufficiently indicated by these quotations: Wheat flour, good grade, \$6 a fifty-pound sack; oat meal, twenty cents a pound; fair-grade ground coffee, in tin, fifty cents a pound; tea of ordinary quality, \$1 a pound; cube sugar, thirty cents a pound; rice, twelve cents and one-half a pound; beans, twelve cents and one-half a pound; well cured bacon, forty cents a pound

condensed vegetables, \$9 a dozen cans ; standard brands of baking powder, \$2 a pound ; dried fruits, medium quality, thirty cents a pound ; cheap-grade calico, twenty cents a yard ; narrow canvas, \$1 a yard ; cheap-grade overalls, \$1 a pair ; light woolen socks, \$1 a pair ; woolen overshirts, light and poor, \$2.50 a piece ; Indian-made moccasins, \$3 a pair ; Indian-made mittens, \$5 a pair ; stoneware-china plates, \$6 a dozen ; cheaply silver-plated tea-spoons, \$3.50 a set ; brooms, \$1.50 a piece ; cheap smoking tobacco, \$1 a pound ; sperm candles, \$6 a box.

The supplies brought to the Klondike by way of the mountain passes could not be sold for less than \$1 a pound as an average without loss by the seller, if he counted his time as having value. No considerable quantity of such supplies changed hands. One thousand head of sheep brought to Dawson by way of the Chilkoot, sold for \$1 a pound, by the carcass, dressed, until only 20,000 pounds remained. When we left Dawson these 20,000 pounds were a drug on the market, the demand having been supplied. Another lot of mutton, 10,000 pounds, brought by another route, also remained unsold. The cattle cost, delivered in Dawson, an average of thirty cents a pound, and sold at from eighty cents to \$1.25 a pound. About 60,000 pounds of the beef remained unsold at the close of December, the demand for it at the ruling price having ceased.

XVIII.

CONSIDERING THE OUTLOOK FOR
CHEAPER COSTS OF MINING THE
YELLOW METAL.

WITHOUT doubt time will bring modification of some conditions out of which have come high wages and costliness of supplies; but even though the regulations whereof we especially complain would be just when such modification shall have been realized, it were unwise and inequitable to pursue them before the change. Laws should have regard to immediate conditions when they are to be operative presently. And the Government should not be deluded by the prospectus of this or that concern into the belief that substantial modification will be speedily effected; for it is one thing to plan in a metropolitan office, and another to execute in a frozen wilderness.

Those companies which promise great things as a result of navigation of the lower Yukon should be considered in the light of that experience which has shown the lower Yukon to have as many moods as a woman, and to present problems with which the most skilful river captains are often unable to cope. It may be worth while to remember that of more than 800 passengers whom the Alaska Commercial Company and the North American Trading and Transportation Company undertook to carry to Dawson last year by way of St. Michael, fewer than fifty were landed at destination, and that nearly all the efforts of the latter company to get steampers as far up stream as Dawson signally failed; yet these corporations have for years been studying the Yukon.

So, the gentlemen who are seeking a franchise for a railway from the Stickine river to Lake Teslin should be considered in connection with these facts:

1. The Stickine River¹ usually begins to run ice about the 1st of November, and ordinarily is closed to navigation from then until between April 20th and May 1st, although Dr. Dawson observes² that in some years the ice is running by the middle of October, and in 1887 the first canoe from the upper river did not reach the coast until May 18th.

2. Lake Teslin and the Hootalinqua River are never navigable between November 1st and the middle of May, by reason of ice, and in some years are closed even longer. For example, in 1887, when Dr. Dawson³ found that some of the lakes in similar latitude with the Teslin were not open for navigation until June 10th, whilst as late as May 22nd the Hootalinqua could be crossed in places on ice-jams.

3. It is 150 miles⁴ from the mouth of the Stickine River to the point at which it is proposed the railway shall begin, sixty-five miles⁵ from the head of Lake Teslin to the head of the Hootalinqua River, and 135 miles⁶ thence to the junction of the Hootalinqua and the Lewes—that is to say, 350 miles of waterway not navigable more than five months of the year, and some years not so long—350 miles of waterway of which the railway is not designed to cut off one, its length (150 miles) being the distance between the Stickine River and the head of Lake Teslin.

4. From Skaguay to the junction of the Hootalinqua and the Lewes is only 226 miles;⁷ so that travellers might be expected to prefer the route they are now using, even with the railway a fact instead of a proposal, during at least seven months of every year.

5. The Lewes and the Yukon are closed by ice about the same months as the Hootalinqua, and in that for seven months, at least, of every year a person journeying from the mouth of the Stickine to Dawson would, notwithstanding the aid of a railway such as is proposed, have to make his way by dog

team or otherwise for 680 miles on the ice, the confluence of the Hootalinqua and the Lewes being 330 miles^a from Dawson,' it is clear there could be no winter freight traffic by way of the Stikine; for it has been abundantly shown by men of the Yukon and indeed by several distinguished explorers of Arctic regions that he does well who can make a journey of that sort encumbered by nothing not essential to his maintenance *en route*.

6. As to summer traffic, the advantage to the Yukon District of such a railway may easily be overestimated; for it appears unlikely that the gentlemen who contemplate constructing it have any present will for carrying freight at rates apt to invite reduction of the prices hitherto quoted by the two trading companies now selling supplies in Dawson after having carried them in the companies' own bottoms by way of the Lower Yukon. On no other tenable theory are we able to account for this language of the Bill⁹ now before Parliament treating of the railway:

The tolls to be collected upon the said line of railway between the Stikine and Teslin Lake, whether by the contractors named in the said contract, or by the Company, and whether for passengers or freight, including Her Majesty's forces, police and others travelling on Government service, and Government stores and freight, shall be first fixed by the Governor in Council, and the tolls so fixed shall not be liable to reduction until the said railway has been in operation for four years; but such tolls shall be reduced by the Governor in Council by twenty-five per cent. from and after such four years, and after the said railway has been in operation seven years they shall be reduced twenty-five per cent. off the tolls as previously reduced, and after the said railway has been ten years in operation the fixing of tolls shall be subject to the provisions of The Railway Act.

True, it is to be presumed that the Governor-General in Council will consider the needs of the Yukon District, in fixing tolls; but it is certain the long annual period wherein nothing can be earned will justify unusual charges, and it is equally clear that tolls which can be cut fifty per cent. and leave a satisfactory profit margin on a railway hung up

between ice-packs for seven months of every twelve will have to be remarkably high. Moreover, the transshipment of freight from Stickine boats to the railway cars and thence to boats on Teslin will prove expensive; whilst the charges for the 680 miles of carriage by water may necessarily be placed high, for boats and officers will be idle the greater part of every year, and there appears to be no evidence to support the belief that navigation of the Hootalinqua, the Lewes, and the Upper Yukon (even supposing the Five Fingers and Rink Rapids to present no substantial difficulties) is easier than navigation of reaches of the Lower Yukon other than along the Yukon Flats. Furthermore, the Bill cited contains no provisions for regulating charges on the boats to be run, in connection with the railway, between the head of Lake Teslin and Dawson. The outlook, we submit, is hazy.

7. Practical men, it is suggested, will not depend on the railway for the transmission of supplies intended to reach the Yukon mining camps this year. The contract set forth in the cited Bill does not oblige the contractors to open the railway for business, as a common carrier, on or before the 1st of next September, but to have it at that date at such stage of construction as "*will permit*" of operation. Besides, no obligation is imposed with regard to lake and river boats. It seems improbable that the railway, if chartered, will be constructed soon enough to handle freight before the Yukon is sheeted with ice again; and it seems unwise, therefore, to consider it a factor in determining the cost of mining in the Yukon now or during the months between now and the opening of navigation in June, 1899.

Whatever may be the success of various transportation concerns, however, human nature will not change; and only as competition compels reduction of wages and the charges for supplies will reduction be made. Competitors are not so heedless of the

conditions governing in new mining camps as to fight fortune from their doors unnecessarily ; and the experience of mining districts shows that wages and prices drop slowly, no matter how excessive they may be at the outset. Witness California, now a half-century from the finding of gold by Marshall, which to this day declines copper coins and, for years after competition had actively begun in all her mining camps, preserved wages and prices that made her peculiar amongst the American States.

But more important than all this, in estimating the probable modification of the present expensiveness of placer mining in the Yukon District is the value of properly weighing the relation borne by climate to the ruling costs. Careful study of the preceding chapters will persuade the inquirer that life can never be so cheaply supported in the Yukon District as in the Australian, Californian, or South African gold-fields ; that prospecting at such cost as obtains in easier latitudes is an impossibility and will continue so ; and that the major part of the expensiveness of washing gold is due to the circumstance that the ground handled is frozen all the year from the roots of the moss to the greatest depth yet reached—sixty feet. Here are conditions not to be modified. We urge that they be earnestly considered.

If it be suggested that inventions have been perfected for mining frozen ground by less costly methods than those pursued along the Yukon, we reply that not any of them has been tested in a latitude like ours, and not any of them has assisted in freeing a grain of gold from ice-packed gravel. And in this regard we quote from the cited sworn statement of Mr. McGillivray,¹⁰ the expert on gravel mining :

Improved or more economical methods are suggested for thawing the ground for drift mining ; but owing to the difficulties of transportation and the distance from points at which machinery for experiment may be obtained, it is not likely that any such methods will be made available, gener-

ally, sooner than two or three years hence, and in the meantime most of the rich mines of Bonanza and El Dorado will be practically worked out. In Siberia, moreover, mining under the management of skilled engineers has been conducted in similar deposits and under similar conditions as to climate, with ample capital, and with means of experimenting, yet the manner of thawing the ground there remains the same as that in vogue here. I do not believe drift mining will ever be made economical enough to be preferred to sluice mining in such creeks as are now being worked.

XIX.

COMPARING THE YIELD OF THE KLONDIKE WITH THE YIELD OF OTHER GOLD-FIELDS.

WE feel assured that the present attitude of Government toward the Yukon District is largely influenced by misinformation as to that region; and we apprehend there is current amongst the honourable Ministers who have framed the regulations which have moved the miners to respectful protest a notion that in the Klondike this Dominion has a strip of land so much richer than other gold-fields of the world that the ordinary measures experience has proved to be proper in other mining districts should not be regarded as important precedents in framing laws for the Yukon.

But there are and have been gold-fields much richer than the Klondike, and with one exception they have not in modern times occasioned extraordinary regulations.

We have shown in a preceding chapter¹ that nothing is known of the Klondike, excepting the district bounded by the Klondike and Indian Rivers, the Yukon River, and a line paralleling the Yukon and drawn forty-five miles to the east of it. What-

ever gold has been mined "in the Klondike" has come from this territory, thirty by forty-five miles in area. In it 4,000 men are living, and most of them are mining. The output for the year 1898, winter and summer work, may reach \$7,000,000.

The Witwatersrand could fit in the space occupied by this known Klondike gold-field and have nearly room enough for two more like itself, its length² being about fifty miles and its width ten miles. The latest report³ we have had time to obtain shows the yield for 1895. It was 2,277,640 ounces of gold, or \$47,082,918.55. In the nine years ending with 1895 this little district yielded⁴ 8,858,039 ounces, of the value \$183,111,610. It is the Transvaal we had in mind when we spoke of an exception. The narrow policy of the Boers has been so ill-adapted to the needs of the men who have been developing the mineral resources of the South African Republic that great friction has resulted.

Gilpin County,⁵ Colorado, is a patch of ground only twelve by fifteen miles in area, yet in two years it has produced gold to the value of \$37,500,000 and silver worth \$3,500,000.

The mining district of Leadville, Colorado, could be lost in the stated bounds of the Klondike, but the latest statistics within our reach⁶ show an annual yield of silver and gold to the value \$10,600,000.

Bodie District, California, has one mountain about two miles long⁷ which has produced more than \$18,000,000⁸ of gold; and the Comstock, Nevada, less than five miles long and twenty to sixty feet wide,⁹ had yielded up to 1889¹⁰ gold to the value \$125,000,000, and silver to the value \$195,000,000, and continues to yield.

But Colorado, California, and Nevada have failed to impose on the mines of these rich regions any unusual regulations.

So far as known no creek in the Klondike—not Bonanza, not El Dorado—will yield \$30,000,000; but in three years Alder Gulch,¹¹ Montana, pro-

duced gold to that value. A single mine¹² in the Witwatersrand yielded in 1895 gold to the value \$2,750,478.

The Klondike claims are exceedingly few, as Mr. McDonald shows,¹³ which yield \$35 to the cubic yard, with depth from moss to non-pay bedrock say seventeen feet, and taking only the richest of the pay-channel, say a width of thirty feet. It will not be denied by anyone having familiarity with the Klondike that no claim has been found there which could average one-half that yield to the cubic yard, working the width miners are accustomed to work a pay-channel in other countries; and these few rich claims bear no closer relation to the average value of Klondike gravel-mines than the few rich spots of Australian or Californian gold-fields have borne to the average value of the mass of auriferous gravel in such gold-fields. We urge that to base upon these exceptional spots a policy bearing upon the gold-bearing alluviums of the far-reaching Yukon District would be distinctly unjust and unreasonable.

But the rich spots of the Klondike do not excite the wonder of persons familiar with the records of mining. Nothing accomplished there can be compared with the result achieved by the Duke of Cornwall Company, at Ballarat, in washing from 3,200 cubic feet of dirt 5,000 ounces of gold,¹⁴ an average of more than \$872 a cubic yard. Neither can the Klondike approach the record of a bit of ground in California,¹⁵ fifteen feet square, from which gold worth \$62,015.40 was washed. Very recently in Trinity County, California,¹⁶ gold valued at \$12,000 was washed from one tub of gravel. Six hundred ounces (\$12,403.08) of dust were taken from one pocket,¹⁷ near Red Hill, Victoria, and so respectable an authority as Mr. J. A. Phillips¹⁸ says the average yield thereabout was twelve ounces to the tub. At Sandhurst¹⁹ dirt has been handled which averaged \$248.06 to the ton, or more than

\$350 a cubic yard; and in the Ararat district²⁰ twenty tons of dirt have given nearly 360 ounces of dust, or nearly \$500 to the cubic yard. The bottom of one Australian shaft has yielded 145 ounces of gold,²¹ and a claim in the Cassiar,²² British Columbia, has given six to eight men 300 ounces in a week.

Therefore, the Klondike is by no means a phenomenon amongst mining regions so far as yield is concerned, although we submit that our chapter on costs shows it to be phenomenal for expensiveness. In no other part of the world is mining so costly as along the Yukon; and, after all, the value of a mine is not the value of the bullion it contains, but the difference between the worth of such bullion and the cost of mining it. Measured by this rule the Klondike's richest claims sink into insignificance by comparison with the richest claims of foreign countries, whilst the average claims are shown to be of little or no present value. Consider for a moment that whereas the cost of summer mining, as set forth by Mr. McDonald, is several dollars a cubic yard, in the Klondike, the same quantity of gravel has been worked in California for a trifle over three cents.²³

XX.

ASKING BLUNTLY, IS THE MINER TO BE LEFT STANDING - ROOM ON CROWN LANDS ALONG THE YUKON?

“THE Answer of *Apollonius* to *Vespasian* is full of Excellent Instruction,” observes Lord Bacon; “*Vespasian* asked him; *What was Neroes overthrow?* He answered; *Nero could touch and tune the Harpe well; But in Government, sometimes he used*

to winde the pins too high, sometimes to let them downe too low. And certaine it is, that Nothing destroyeth Authority so much, as the unequall and untimely Enterchange of Power *Pressed* too farre, and *Relaxed* too much." Should the Dominion do as it is asked to do by Messrs. William Mackenzie and Donald D. Mann, and should it, on the other hand, persevere in its present laws as to the Yukon placer-miners, the world would have a strong example of the sort condemned by the great English philosopher. And in saying this we do not mean to insinuate aught aspersing the motives of the public men of Canada; for we entertain feelings of distinguished respect for the statesmen of this Dominion, and whatsoever we think we observe which is contrary to justice and subversive of the common weal we attribute to imperfect understanding of the conditions governing in our distant land.

Stickine and Teslin Railway.

What are the chief features of the railway Messrs. Mackenzie and Mann are willing to construct? An almost obsolete standard, gauge, and equipment,¹ quite unsuited to the cheap and expeditious handling of large traffic; a terminus only twenty-six miles² nearer to Dawson than are the wharves at Skaguay; one hundred and fifty miles³ of rails so sandwiched between the ice-packs of the Stickine and Lake Teslin as to be useless for at least seven months⁴ of every year; a scale of tolls which will be ten years⁵ in getting down to a point where the Railway Act can reach it; an absolute monopoly⁶ of railway ingress to the Yukon District for not less than five years and may be for twice that period; the right of having as an annex steamships⁷ on the Stickine, on Lake Teslin, and on the rivers of the Yukon District, but no obligation⁸ to establish such annex and no governmental control of tolls⁹ on such steamships as may be operated.

What is the price demanded for this absurd excuse for a serviceable highway to the Klondike? Extravagant tolls;¹⁰ the right to dawdle¹¹ indefinitely before opening the railway as a common carrier; the right to shuffle stock¹² in a way to place shareholders on unequal footings as to profits; the right to have directors chosen¹³ by star-chamber methods; the right to engage in nearly every form of trade¹⁴ short of vending town-lots on the stars; the right to raise the money wherewith to build the road by selling or pledging the lands¹⁵ to be granted as subsidy; and, above all, nearly everything worth having in the Yukon District. It is with the last portion of the price that we wish especially to deal.

The Bill in Parliament relating to this matter sets forth the following¹⁶ with regard to the extent of land grant:

In aid of the construction of said line of railway from Stickine River to Teslin Lake the Government shall grant to the contractors for each mile of said railway twenty-five thousand acres of land to be selected as hereinafter mentioned from the Yukon Provisional District and from that part of the North-West Territories of Canada lying west of the Mackenzie River and Liard River and north of the 60th parallel of latitude, such land to become vested in the contractors upon the said railway being completed and accepted as complete by the Government and upon the said land selected as hereinafter set forth.

That is to say, it is asked that 3,750,000 acres of land be given Messrs. Mackenzie and Mann. Yet the entire district about Dawson in which anyone is even prospecting is only thirty by forty-five miles¹⁷ in dimensions, an area of 864,000 acres; and it is not known at this moment that the Yukon District contains in all its length and breadth an area of mineral land worth working now or years from now aggregating anything like the empire sought by these good gentlemen as part payment for a railway worthy of Lilliput. What of the miner? Where is he to turn? What is to be left for him? And as the Honourable, the Minister of the Interior observed¹⁸ recently in addressing the Commons, "We know that for many years past upon this con-

continent there has never been so great a movement of population to any one place as seems to be imminent at the present time in what is known as the movement to the Klondike District." And he continued, "It is such facts as these we have to deal with." How, pray, is the Government dealing with them?

The contract recited in this Bill gives¹⁹ three years from the 1st of September, 1898, for selection of one-half the lands, and six years from the same date for selection of the remainder. So soon as any ten continuous miles²⁰ of the railway are complete two blocks of the land may be selected and reserved from the general public, and on completion of the entire railway the blocks thus reserved shall be confirmed to the contractors. The method of selection is provided for as follows:²¹

The lands shall be selected by the contractors along base lines, and the base lines may be of two kinds:

First. The contractors may take as a base line a line which will correspond with the general course of any lake, river, stream or watercourse, such line to be determined by survey or approximate survey to the satisfaction of the authorized agent of the Minister of the Interior, and to follow the general course of the lake, river, stream or watercourse for the required distance; and

Second. The contractors may take as a base line a line commencing at any point located by them and running from such point due north, east, south or west. The land along a base line shall be divided into blocks, each block to extend three miles along the base line and to extend three miles backwards on each side of the base-line. On each base line there shall be at least eight of such blocks, but there may be more at the option of the contractors. These blocks shall be numbered from one up consecutively; the odd-numbered blocks shall be the property of the contractors; the even-numbered shall remain the property of the Government. The contractors shall take at least four blocks on each base-line established by them for the purpose of selection, but shall not be bound to take more—but they may take as many more as they desire and as circumstances permit. Thus upon each base line so established there shall be laid out a tract not less than twenty-four miles along the course of said base line by three miles on each side thereof in width, making eight blocks of three miles by six miles. Provided that if in the selections of lands along any base line the courses thereof prevent rectangular blocks being laid out, such blocks shall be adjusted to the required angles, preserving

as far as practicable blocks of an area of three miles by six. Any shortage or surplus of such area shall be adjusted by the prolongation or shortening of such base line.

It has been suggested²² by the honourable Minister quoted that it is unlikely ten miles of the railway could be completed before the 15th of June, so that, to use his own words, "from now until then any portion of that country can be taken up by any of the thousands of people who are going in." But this is misleading; for no matter what efforts are put forth only a very small percentage of these thousands can reach the Klondike by June 15th, as the most superficial study of Mr. Ogilvie's reports must persuade. Few persons who intend to mine in the Klondike are likely to undertake the journey thither without a year's outfit of food, and no person with such *impedimenta* can go from "the outside" to Dawson between now and the breaking of the ice. In that they who go by boat cannot find safely navigable waters before the close of May the number who will arrive in the gold-fields before June 15th will not be difficult to count. Moreover, it requires a six-month²³ after one gets into the Klondike to do any such prospecting as should justify the recording of a claim. There is a great deal of difference between getting to Dawson and getting a claim if one be a real miner rather than a curbstone speculator; and it is in behalf of the real miners we are pleading.

But that is a sorrowful policy, frankly, which encourages the miner by saying: Beat the railway men to the Klondike, and you may get a place to dig without consulting them.

It has been said²⁴ by this honourable Minister that "if this company [referring to Messrs. Mackenzie and Mann] wants to get any gold-bearing territory at all, it is compelled to take its base line by following the general course of the stream, and to take this in blocks six miles wide;" but a study of the contract²⁵ will show that whilst the contract-

ors "may" take a base line so, they may preferentially take as a base line "a line commencing at any point located by them and running from such point due north, east, south, or west." However, assuming that base lines would be run as suggested by the honourable Minister, Messrs. Mackenzie and Mann's holdings would aggregate 960 miles of creek and river claims, and drag their way over about 2,000 miles. Yet Bonanza Creek is only twenty-three miles long and El Dorado only eight.

There could be no security, with the contract confirmed and ten miles of the railway complete, that a miner could avoid being encompassed by Messrs. Mackenzie and Mann; for the contract contains this covenant:²⁶

Any and all mining claims actually held and recorded pursuant to Government regulations by a free miner or free miners and being within a block of land taken or selected by the contractors hereunder shall be excepted from the grant and shall not pass to the contractors, provided that such claims have been so actually held and recorded prior to the base line, along or with reference to which such block is taken, being actually run and marked on the ground by the contractors. * * * In case any land is excepted out of blocks taken by contractors on account of free miners' claims or otherwise the quantity so excepted shall not be counted in the acreage of lands to which the contractors are entitled hereunder.

So that it might well be a miner would awaken one morning and find himself a dot in a wide expanse of Messrs. Mackenzie and Mann's northern principality; and unless the hearts of them were strongly inclined to charity these gentlemen might be tempted to make use of their advantage in some way not calculated to make life pleasant for the man in the block, especially in view of the fact that Messrs. Mackenzie and Mann, having the fee simple²⁷ to the lands granted them, might attach value to the easement required by the solitary miner in going to and from his claim.

Worse yet might be the plight of the good-faith prospector; for where the regulation restricts a miner to the right of locating one creek or river claim in a mining division, as is the case in the

Yukon District,²⁸ the true prospector is not likely to exercise his right until the ground he is prospecting has been thoroughly examined, and in the Yukon District thorough examination is a labour of months.²⁹ Yet he would lose the ground on which his hopes had fixed themselves should the industrious base line catch him before he had accomplished enough to justify him in recording³⁰ a claim, although he might have been toiling like a galley-slave an entire season; for to avoid the reach of the railway's arm he would be obliged to have recorded, and recording is the finality in exercising the right to locate a claim—the obtaining leasehold title. It would not, under the terms of the contract, avail him that the base line found him at work digging for such prospects as might help him in determining whether he could or could not safely use his right as to that ground. Could anything be more unjust? Do the honourable gentlemen think there would be much prospecting on Crown lands in the Yukon District under such circumstances, when just across the International Boundary ground as promising as that in the Canadian territory abounds and is not hedged by dangers such as this? Is it said that in drawing a base line Messrs. Mackenzie and Mann would necessarily be very slow, because of the delay attendant on surveying? But their contract does not hold them to the need of making careful surveys. "*Survey or approximate survey*" is the elastic language of that instrument.

The terms of this Bill enable³¹ Messrs. Mackenzie and Mann so to run base lines between the Klondike and Indian rivers as to acquire all the unlocated lands in that district, excepting only such as would be found to lie in the Government's blocks. But, it may be said, little as this might be it would be something. Not necessarily; for does not the contract provide that "the contractors shall take at least four blocks on each base line * * * *but they may take as many more as they desire and as circum-*

stances permit"? The Government would retain alternate blocks only when it should please the contractors to have it so. And in the same way these gentlemen could blanket any district miners might show to have value. True, in the district between the Klondike and Indian rivers for forty-five miles east of the Yukon a great deal of the ground constituting the creek claims has been located; but there are breaks here and there, and surveys will reveal valuable fractional claims not yet located. Besides, what of the hillsides and the summits? But, says³² the honourable Minister, "the gold is found in that territory in the beds of the watercourses." We submit that one of the richest parts of the Klondike is a hillside of Skookum Gulch,³³ and that placer gold is found in paying quantities on various benches and slopes³⁴ near Dawson. Besides, what of the timber on the hillsides contiguous to the mines? If Messrs. Mackenzie and Mann are given lands in fee simple, as this Bill provides, will they not own the trees on the lands? But it is the timber on the slopes of Klondike stream-valleys which affords most of the fuel wherewith the miners are enabled to thaw the frozen muck and gravel wherein they mine; for the creek bottoms are narrow and the timber on a claim is speedily exhausted. If the fuel without which mining cannot be carried on should pass into the ownership of one corporation might not the effect be disastrous to the men with the mines unless the corporation should be somewhat more philanthropic than corporations ordinarily are?

Whatever merit may be in the observation that placer gold is confined to stream-channels, in the Yukon District, counts heavily against the proposal of Messrs. McKenzie and Mann, however; for there is nothing "in the bond" to prevent these gentlemen from running their base line *across*³⁵ the channels, and thus taking *all* the auriferous deposits there, throwing the Government blocks amongst

the hills. Again, even should the base lines run with the course of the stream, the contractors would be able to throw the Government out of any block they cared to have ; for by electing to take more than four blocks in a twenty-four-mile reach they could acquire the entire tract or so much as might suit their purpose. So, if the channel of a stream should exceed twenty-four miles, but by only a few miles, the contractors would be in no need of waste. To obtain the remnant they could elect to have their base line lengthened by as many blocks as might be required to cover the excess ; for whereas the contract provides there shall be *at least eight blocks on every base line*, it adds that there may be *as many more* as the contractors shall determine.

It has been said⁸⁶ by the honourable Minister that the experience of every mining country in the world is that it costs a great deal more to develop auriferous quartz lodes than they are worth. We do not know what authority has been found for so strong a statement ; but such statistics as we have been able to reach do not in any degree confirm it. The experience in Alaska, for example, does not tend to confirm it, although lower-grade quartz is milled in Alaska than elsewhere in the world. There, as has been shown in a preceding chapter,⁸⁷ the Alaska Treadwell Gold-Mining Company has made a net profit of nearly \$3,000,000 in handling a gross yield of less than \$6,000,000. Or take the experience of El Callao,⁸⁸ Venezuelan Guiana, which from 719,257 tons of quartz gave 1,438,638 ounces of gold, of which more than one-third was returned in dividends to shareholders ; or the experience of the Standard Consolidated,⁸⁹ California, which in one year yielded bullion to the value \$2,084,550, with only 150 men employed. True, these are shining lights, but they suggest the need of careful inquiry before shutting the miner out of vast areas of Canadian mineral lands wherein gold-bearing quartz veins may exist.

Blocks of Ten.

Since our neaparture from Dawson the mining regulations for the Yukon District have been amended.⁴⁰ Now, instead of the objectionable reservation of every alternate placer claim by the Government, we have the objectionable reservation of every alternate block of ten placer claims by the Government. The regulation⁴¹ in this regard is as follows :

Every alternate ten claims shall be reserved for the Government of Canada. That is to say, when a claim is located, the discoverer's claim and nine additional claims adjoining each other, and numbered consecutively, will be open for registration. Then the next ten claims of 250 feet each will be reserved for the Government, and so on.

To what purpose? we ask. Does the Government wish to engage in mining? Russia has not found state mines ideal institutions, and is receding⁴² from the policy. Does the Government hope for larger revenue than the old course could yield? Are there not simpler and fairer means to the end? The regulations afford no clue to the manner of dealing with these reserved lands. All that is said is this :⁴³

The alternate groups of claims reserved for the Crown shall be disposed of in such manner as may be decided by the Minister of the Interior.

But who can say what this or that Minister of the Interior shall decide? And is it consonant with the genius of Canadian government to lodge in any individual an autocratic power over one-half of all the Crown mineral lands in the placer gold-fields of a district nearly as large as France⁴⁴ and greater than the United Kingdom by 71,100 square miles?

If the usual location system is just and wise in the case of ten claims, why not in the case of the ten adjacent claims amidst identical conditions? Are discriminations to be encouraged which have no basis in differences of conditions?

What guaranty is given the men who testify their good faith by toiling to the Yukon that they will have an opportunity of acquiring any of these reserved Crown lands? May it be with them as with dredging leases that they will be disposed of thousands of miles from their boundaries and without enough of pause for the men of the Yukon to know the terms of transfer, much less to communicate with Ottawa?

But there are more tangible breakers ahead. What of the trespasser? The regulations provide:⁴⁵

The penalty for trespassing upon a claim reserved for the Crown shall be immediate cancellation by the Mining Recorder of any entry or entries which the person trespassing may have obtained, whether by original entry or purchase, for a mining claim, and the refusal by the Mining Recorder of the acceptance of any application which the person trespassing may at any time make for a claim. In addition to such penalty, the Mounted Police, upon a requisition from the Mining Recorder to that effect, shall take the necessary steps to eject the trespasser.

Yet no surveys have been made along any of the watercourses in the Yukon District other than El Dorado and Bonanza Creeks, and even these tiny streams have not been fully surveyed.⁴⁶ How, pray, are locators to know the limits of Government blocks, in advance of official surveys? Such rough estimates as the average miner is able to make are invariably more or less faulty. But to err may be to trespass, and to trespass is to forfeit one's claim. And so to survey all the country into which the prospector may wish to penetrate that Government blocks should be exactly defined as rapidly as base lines might be given by discoverer's claims, would require the *constant presence* in the Yukon country of an army of surveyors and draughtsmen; for was not Mr. Ogilvie employed for months in running lines on fewer than twenty miles of Bonanza and El Dorado creeks?⁴⁷ Moreover, the scheme of making a mining district into a series of pretty rectangles, and assigning the miner the ground contained in a rectangle beginning exactly on the

boundary of the Government block, or exactly 250, or 500, or 750, or 1,000, or 1,250, or 1,500, or 1,750, or 2,000, or 2,250 feet from there, is absurd. Never before was anything like that attempted. A mining district cannot be mapped in advance by a clerk in an Ottawa office. The miner may find the beginning of prospects 50, or 75, or 166, or any number of feet from the boundary, and he will wish to stake a claim—not where the Ottawa clerk has said, but where the gold lies.

Size of Claims.

At a time when men who have never seen the Yukon are obtaining river channels in five-mile lengths and as many lengths as they please, and when other men are asking the fee simple to blocks of placer territory each eighteen square miles in area, and enough of them to make a pretentious empire, it may not seem unreasonable to plead that the *real miner* be given ground enough to hold his cabin and his sluices. The regulations as they stand deny him this poor boon.

When the petition set forth in the introductory of this appeal was framed, the Dominion had reduced⁴⁸ the length of the creek, gulch, and river claims from 500 to 100 feet, an act so out of keeping with the physical conditions of the Yukon country that the miners rubbed their eyes in amazement and refused to believe. When it became clear the thing had been done, prospecting ceased. We quote from the cited sworn statement of Mr. McGillivray:⁴⁹

I have spoken with a great many of the prospectors in this District, and many have told me that it had been their intention to go out this winter to creeks that have not been prospected—creeks running into the Klondike, the Indian, the Stewart, and the Yukon; but that they have determined not to do so, because of the reduction of length of claims, the reservation of alternate claims, and the imposition of royalty, and especially because of the reduction of length of claims. As a result, there is practically no prospecting being done except in the immediate neighbourhood of Dawson.

Many of these men are now working here for wages, and say they will go to Alaska as soon as an opportunity offers. These are the best men who can be encouraged to come to such a country as this to open its resources—miners of experience in other gold-fields, hardy, industrious, and honest.

By an Order in Council on the 18th of January, this year, another change was made: the length of creek, gulch, and river claims was increased⁵⁰ to 250 feet each. How these figures were reached we are not informed; but we are certain they cannot be based on correct information as to volume of water, cemented condition of gravel, and grade of present stream-channels in the known area of the Yukon District.

What length a claim must be for miner-like working is not a matter of guessing but of mathematics; and it cannot be to the interest of the state to make the length of a claim less than is consonant with miner-like development. But that is what the state has done in the case of the Yukon placers.

Mr. Augustus J. Bowie, probably the world's greatest authority on gravel mining, says⁵¹ in discussing the grade required in sluicing:

Experience thus far has led to the adoption in most localities of what is called 6 or 6½-inch grade, meaning 6 or 6½ inches to the box 12 feet long, or, say, a 4 to 4½ per cent. grade. In some places, where large quantities of pipe-clay are washed off, 9 and 12-inch grades to the box are used (6 to 8 per cent.). In others, on account of natural obstacles encountered, a 1½-per cent. grade or 2½ to 3 inches per box of 16 feet, is used.

But the known auriferous streams of the Yukon District are nearly flat. We quote from a sworn statement, made for the information of the Government, by Mr. Alfonso A. Tregedgo,⁵² the distinguished mining engineer:

In my examination of many creeks in said [Yukon] District, I have found the majority of them to be so flat that it would be impossible properly to sluice the gravel and impound it within a claim running less than five hundred feet along the course of the stream—that is to say, without considerably elevating the pay dirt. At \$15 per diem or even

\$10 per diem, and no power but man-power, that must necessarily be very rich gravel which can stand the expense of elevation.

To the same effect as to grades are such observations as Mr. Ogilvie has made. He estimates⁵³ the fall from the head of Lake Bennet to the International Boundary to be 2.41 feet to the mile; and he says⁵⁴ something suggestive in commenting on two of the principal rivers of the District. "Unfortunately," declares Mr. Ogilvie, "on Lewes and Pelly Rivers there is no way of sluicing without the aid of pumps, there being no streams with fall enough to get the necessary current in the sluice-boxes."

It should be borne in mind, too, that no matter how men may try they fail by any method yet known so thoroughly to thaw the gravel that it gives up its gold readily in sluicing. It has lain deep amidst the frost for centuries and perhaps for ages, and is cemented to a degree that has suggested to several expert miners the plan of mining and milling it as men mine and mill auriferous quartz. We quote again from Mr. Bowie:⁵⁵

Where the wash is coarse and cemented, requiring blasting, or where there is much pipe-clay, a heavy grade is necessary. Strongly cemented gravel requires drop to break it up.

And there is pipe-clay to be dealt with in the Yukon placers. As to this we quote from Mr. McGillivray's sworn statement:⁵⁶

Owing to the presence of considerable pipe-clay in the pay-ground in the creeks of this [Yukon] District, a flume should be of considerable length in order to disintegrate the clay and properly to wash the gravel.

Consider the plight of the miner who, denied by Nature the grade essential to unpack cemented gravel in a short line of sluice-boxes, is estopped by Government from overcoming this difficulty, in so lengthening his line of boxes that the gravel may travel far enough to be hammered into release of its gold. And not in 250 feet can such hammering be done, with Yukon grades. Mr. McGillivray

gives⁵⁷ it as his opinion that the line of boxes should be at least 300 feet in length ; and of course this expert has in mind gold-washing on the small scale attempted in the Klondike, for where gravel is washed on a large scale sluices run into the thousands of feet, as in the case of the North Bloomfield Mine,⁵⁸ California, where the gravel washes nearly two miles.

Given ground enough for sluicing, there remains the need for an area sufficient for the reception of tailings, and a further area sufficient for damming of water ; and it will readily be understood that with the slight fall peculiar to Yukon waters sluicing cannot be carried on without damming to a height certain to back the impounded volume a considerable distance—at least 200 feet, Mr McDonald and three other experienced Yukon miners⁵⁹ testify.

Can any one of the honourable gentlemen addressed suggest how the miner is to impound water for sluicing, set aside ground for a dump, and place a reasonable length of sluice-boxes in a claim less than 500 feet long? Yet the limit assigned by the newest law is 250 feet.

What of the miner who happens to adjoin a Government claim, under these circumstances? Should he back water on such claim, or set some of his sluices on it, or encroach with waste-ditch or drain on it, would he not be a trespasser? And if a trespasser, would he not forfeit⁶⁰ his ground and the right to locate elsewhere in the District?

Again, what can be the gain to the state from a policy cutting claims to a size forbidding economical working and multiplying the trials of the miner in a region whose unavoidable qualities are severe beyond description? Is it not the highest interest of the state to have the gold mined as quickly and cheaply as men can mine it?

But, as Mr. McGillivray observes,⁶¹ "The high cost of mining and prospecting, due to the con-

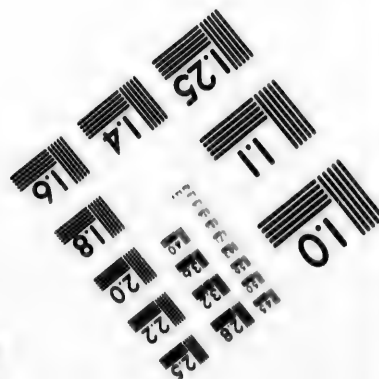
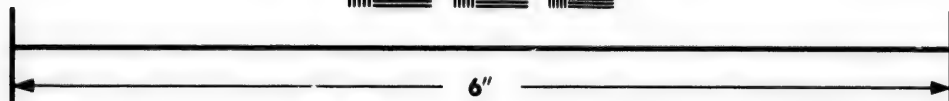
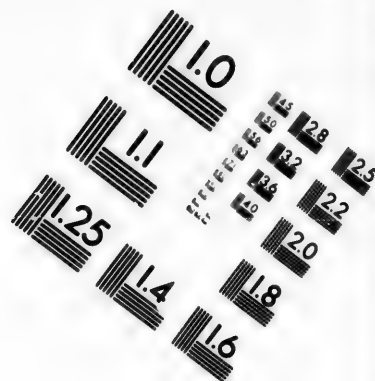
ditions peculiar to the Yukon District, make it impracticable to work any but exceedingly rich ground in small holdings." And in the following paragraphs of his sworn statement⁶² he directs attention to some pertinent facts touching the size of claims :

In order to prepare to sluice it is necessary to dig a waste-ditch to carry off the surplus water of the creek ; to cut a drain—usually 800 to 1,000 feet long—from the lower end of the claim to be worked ; to bring lumber from Dawson or whipsaw it—the minimum cost on the claim being about \$250 per thousand board feet in either case, the lumber being necessary for sluice boxes and settings ; and to build at least two dams.

These items would cost practically as much for a mine 100 feet in length as for a mine 500 feet in length ; and, as a result, it would be as expensive for deadwork to work a claim 100 feet long as to work one 500 feet long.

The length 500 feet, was not fixed upon by chance, but because of experience, and we appeal to the records of the Department of the Interior for confirmation of this statement. The records of the Department show⁶³ that prior to the discovery of gold on Bonanza Creek, the mining carried on along the Yukon was mainly in Alaska ; that the earliest placer claims recorded in the Yukon District were each 500 feet long ; that thereafter a few 300-foot claims were recorded ; that later came a return to the 500-foot limitation, which crystallized into law on suggestion of Canadian officials familiar with the Yukon region ; and that this limitation obtained until the change which produced the dismay already mentioned.

In Alaska the miners may regulate⁶⁴ the size of claims as they desire, provided they keep within the general limitations fixed by the laws of the United States, and in this way they have the power to make each placer claim as much as twenty acres⁶⁵ in area. This was the state of the law when gold was found on Forty-Mile Creek, and it has been thus ever since. Yet, with this large power in their keeping the miners did not choose to take unto themselves unreasonably large claims. With



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the exception of one or two creeks the limitation was fixed at 500 feet.

When it was proposed⁶⁶ that 300 feet be tried, the proposal was approved; but it was demonstrated speedily that a claim so short could not be mined to advantage, and in consequence the 500-foot limit was again established.

In this regard, we quote from a statement made by Mr. Bourke for information of the Government, and by us filed in the Department of the Interior. Mr. Bourke, who is a pioneer miner, says :

I know from experience that the flatness of stream-channels in the Yukon District obliges to liberal lengths of placer claims. How a claim less than 500 feet long can be worked properly I cannot understand. I know, too, that some years ago, when Canada had no disposition to impose any regulations on the miners there without consulting their experience and their wishes, that the miners voluntarily tried 300-foot claims, and that they found it impossible to get water and sluice-box arrangements in so short a claim to enable them to work to any advantage. Accordingly they petitioned for the 500-foot claim approved by their experience, and it was given them. That length is the shortest that is consistent with the grade there and the packed condition of the dirt to be handled. A 250-foot claim is nearly valueless. Men who understand mining will not prospect for so short a claim. It cannot be worked to profit; and in some cases it cannot be worked at all.

When the miners drew this line the world was giving them no heed, and they were dealing with the situation from the practical standpoint of men who were bent on working the claims located. Has Canada some better information than that these toilers of the north have starved and suffered to gain?

XXI.

URGING THAT THE TAXE SLAID ON YUKON
PLACER MINES AND MINERS ARE
UNJUST, OPPRESSIVE, PROHIBITIVE
OF MINING, AND WILL NOT YIELD THE
COSTS OF COLLECTION.

THERE is widespread indignation in the Yukon District because of the extravagant taxation imposed on miners, by recent regulations; and it does not spring from unwillingness to contribute reasonably toward the maintenance of government, for there is no such unwillingness, but from the knowledge born of hunger and weariness and heart-ache that the taxation is cruelly unjust.

The men of the Yukon respect the obligation to pay taxes, and will not murmur against any policy which is not crushing; but they earnestly protest against a course which must result in closing mining operations in all but the few remarkably rich claims of their District, and in driving the average miner into foreign gold-fields.

Have the honourable gentlemen addressed carefully considered from how many sides the Yukon mines are menaced by taxation?

Before a person can have any privileges in the District he must pay an annual tax of \$10 (companies must pay more) for a "free miner's certificate."¹ Then, to locate a claim he must pay an "entry fee"² of \$15, and to hold the claim he must thereafter pay an annual charge³ of \$15. In addition he must pay a royalty on the *gross output* of the claim. The regulations⁴ as to royalty are as follows:

A royalty of ten per cent. on the gold mined shall be levied and collected on the gross output of each claim. The royalty may be paid at banking offices to be established under the auspices of the Government of Canada, or to the Gold Com-

missioner, or to any Mining Recorder authorized by him. The sum of \$2,500 shall be deducted from the gross annual output of a claim when estimating the amount upon which royalty is to be calculated, but this exemption shall not be allowed unless the royalty is paid at a banking office or to the Gold Commissioner or Mining Recorder. When the royalty is paid monthly, or at longer periods, the deduction shall be made ratable on the basis of \$2,500 per annum for the claim. If not paid to the bank, Gold Commissioner, or Mining Recorder, it shall be collected by the Customs officials or police officers when the miner passes the posts established at the boundary of a district. Such royalty to form part of the consolidated revenue, and to be accounted for by the officers who collect the same in due course. The time and manner in which such royalty shall be collected shall be provided for by regulations to be made by the Gold Commissioner.

Default in payment of such royalty, if continued for ten days after notice has been posted on the claim in respect of which it is demanded, or in the vicinity of such claim, by the Gold Commissioner or his agent, shall be followed by cancellation of the claim. Any attempt to defraud the Crown by withholding any part of the revenue thus provided for, by making false statements of the amount taken out, shall be punished by cancellation of the claim in respect of which the fraud or false statements have been committed or made. In respect to the facts as to such fraud or false statements, or non-payment of royalty, the decision of the Gold Commissioner shall be final.

All this suggests the thought that there are limits to the right of Government to lay taxes, and invites reflection on the duty of the Dominion to examine relations borne by this taxation toward the miners upon whom, and the mines upon which, it is imposed, and toward other persons and properties in Canada. Certainly there are things which the Government has no constitutional right to do, and not everything should be done which it is lawful to do.

Taxation That Is Hurtful.

We deny the existence of a right, in times of peace, to levy taxes so burdensome as to amount to confiscation; and we charge that the present regulations will have the effect of rendering valueless miles and miles of placer claims already located in the Yukon District, and of depriving of value

thousands of acres of auriferous gravel not yet claimed. In this regard we refer to the chapters of this plea wherein the character of the Yukon gold-fields has been laid bare so far as men yet know and in further confirmation of our position we quote from the cited sworn statement⁵ of Mr. McGillivray :

Gold has been found to exist in a tract of country extending from the Hootalinqua River, at least, to the boundary line below Forty-Mile, a distance of nearly 400 miles. It has been shown that in all this country, along nearly all streams gold can be washed ; but in no portion of this vast district has gold been mined with more than the most meagre profit except upon a few claims in the Forty-Mile, Sixty-Mile, and Klondike divisions of the Yukon District.

* * * * *

There have been located in the Yukon District more than three thousand claims—more than 250 miles of creeks ; and a very small portion of the territory located— not more than 50 miles—is generally believed to be workable with profit by present methods and present values—and by "generally believed," I mean generally believed by the miners of experience with whom I have spoken in this regard.

* * * * *

The royalty of ten and twenty per cent. will prevent the working of a great many mines—probably some even on El Morado and many on Bonanza, and certainly all or nearly all so far as shown on Hunker, Bear, and other creeks of this District.

It should be said that when we left the Klondike the regulations⁶ placed a royalty of twenty per cent. of gross output on the richest claims. Since then⁷ the Government has reduced the royalty on these most valuable claims, placing them on the ten per cent. footing of the average holdings. The testimony of Mr. McGillivray is entitled to great respect. The gentleman is one of the most skilful experts on gravel mining the great needs and resources of California placers have brought to the fore, and, having no selfish interests in the Yukon District, is an impartial witness. For a long time Mr. McGillivray has had editorial charge of the leading mining journal⁸ of the Pacific Coast, and he was sent as a mining expert to the Klondike by Mr.

James Gordon Bennett, to tell the readers of the *New York Herald* the exact truth as to the character of the Yukon mines.

Corroborative of this gentleman's statements is this excerpt from the sworn declaration⁹ of Mr. Alfonso A. Tregedgo :

I, Alfonso A. Tregedgo, do solemnly declare :

That I am a native of England, a resident of Dawson, Canada, and a mining engineer by profession.

That I have been engaged in mining during the last twenty-one years, and have had charge of quicksilver copper, silver, and gold (both quartz and placer) mines on the Pacific Coast. I am thoroughly conversant with mining in all its branches.

That, in my opinion, the most recent changes in the mining regulations for the placers of the Yukon District are unjust to the miner and detrimental to the development of the mineral resources of the North-West Territories. I refer to the changes imposing a royalty, diminishing the length of creek and river claims, and reserving claims from location in the common way.

That the history of mining in other countries of the world shows that the average of profits derived from mining has been less than the royalty provided for in the aforesaid regulations.

That, whilst some rich placers have been discovered in the Klondike Mining Division of the Yukon District, it is not likely that all creeks or many creeks in that Division will prove to be as rich as Bonanza and El Dorado creeks are. And, after examination of Bonanza and El Dorado, the richest streams yet known in said District, I give it as my opinion that, taking as a basis the average value of the worked-out portions of said streams, the total product of both of them will not be in any sense a justification of a heavy tax.

That mining in the Yukon District is much more expensive than in any other part of the world, the claim-owners having to pay excessively for labour and supplies, but, above all, having frozen ground to work in and being greatly impeded by the terrible severity of the climate. The circumstances all considered, I cannot see how the average profit to the Yukon miner can be expected to be so great as the average profit has been to the miners of California, Russia, Australia, or South Africa. Withal, conditions in any part of these countries being easier than those governing in the Yukon District, the profit in any of them did not average the percentage of gross yield now proposed to be collected here as royalty. I cannot escape the conviction that should Canada persist in the determination to collect a royalty the effect will be to drive the miners from the North-West Territories—probably into Alaska.

So, Mr. McDonald, the foremost miner of them all, says in his cited sworn statement¹⁰ :

In my opinion a royalty of ten or twenty per cent. of output is certain to render unworkable nearly all the claims in said [Yukon] District, and to keep capital out of the Klondike.

And in this he is corroborated by Messrs. Alexander Calder, John Lind, and Skiffington Mitchell¹¹, all pioneer Canadian miners of the Yukon, thoroughly conversant with the output of the placers there.

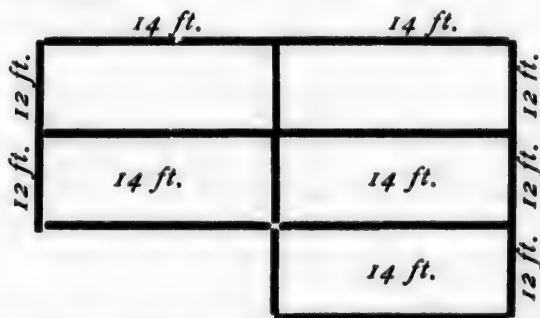
Perhaps the situation as to the low-grade gravel may be better understood by showing how it fares with the high-grade gravel. We quote from the sworn statement¹² of Mr. Hill :

I, Charles Hill, do solemnly declare :

That I am familiar with the output and expenses of Claim No. 5 above Discovery on Bonanza Creek, in the Klondike Mining Division of the Yukon District, Dominion of Canada, a claim generally regarded in said District by the mining men thereof as one of the fairly rich claims of the Klondike.

That during the season of "summer working," last past, about five box-lengths of said claim were worked ; that is to say, a pit was worked from surface to non-pay bedrock, in the richest portion of the pay-streak, twenty-eight feet wide and an average of thirty feet long.

That the said pit was opened in two cuts, and was in form as indicated thus :



That the said cuts were made in the present creek bed of Bonanza Creek, thus avoiding considerable stripping of surface moss and muck.

That from the creek bed to bedrock in said cuts was between seven and eight feet, with an average depth of pay gravel of one foot.

That bedrock in said cuts was worked to a pay-depth of about two feet.

That the gross yield of said summer working was as follows :

June, 1897.....	\$ 5,355.00
July,	5,700 00
August, 1897.....	16,537.25
September, 1897.....	6,421.25

Total\$ 34,023.50

That an itemized account was kept of the wages paid the labourers who picked, shoveled, and sluiced the dirt from said cuts, and the aggregate is \$19,180.80. This does not include any of the labour items for the deadwork, such as building of cabins, building of dam, construction of waste-ditch, building of sluice-boxes, setting of sluice-boxes, maintenance of riffles, and the like, nor any items for materials or tools used or for provisions consumed.

That I have heard read the affidavit of Alexander McDonald as to cost of deadwork, and hereby declare that the figures therein quoted are approximately the figures representing the outlay for deadwork on said claim No. 5.

The affidavit of Mr. McDonald is quoted in the preceding chapter dealing with the cost of mining in the Yukon District. Mr. Hill's statement should be amplified by the information that during the time mentioned claim No. 5 was owned by three men, and that the \$19,180.80 is not inclusive of any wages to them, although much of their time was spent in working the property.

Will someone have the goodness to demonstrate that had every man employed on this claim been taxed \$10 a year for the right to work, and had a royalty of ten per cent. been collected on the difference between \$2,500 and \$34,023.50, and had the proper *pro rata* of the enormous cost of deadwork been charged against the yield—will someone, we ask, have the goodness to demonstrate that these partners could have bought beans and bacon at the close of a season's operation of their rich Klondike claim? And suppose they had paid \$100,000 for the property and hoped to earn return on the investment and some day to get their capital in hand again, what then?

But if it is thus with the rich claim, what of the low-grade claim? Can it be expected that with such weight of taxes men could afford to work the aver-

age gravel even in the Klondike? And is it not a fact that it is vast deposits of low-grade gravel and not the few high-grade spots which have yielded and are yielding the yellow metal of the world? Does Canada wish to pursue a course which leaves the Yukon as though its low-grade gravels had never been brought within the reach of pick and shovel?

If it be argued that the \$2,500 exemption enables the poor gravel to be worked, we reply that at least two men are required to operate a claim, and that ground from which they cannot gain more than \$2,500 a year will not be workable, in that the living expenses of two men and the unavoidable outlay for mining would exceed the yield of such a claim, leaving a deficit instead of wages.

Taxation That Discriminates.

What does the Government desire? Is the purpose to make the Klondike pay the taxes of Ontario and Quebec?

But the Government has no right to do a thing so palpably unjust. The true view was taken by the famous John Hardy, first gold-fields commissioner of Australia.

He was testifying before the Gold Fields Committee of the Legislative Council of New South Wales, in 1855, and these questions and answers¹² are instructive:

Question 21 (by the Colonial Secretary). Has it occurred to you that over and above the revenue sufficient to maintain the establishment for these [peace] purposes it would be desirable to obtain a revenue from the gold applicable to other and more general purposes?

Answer That involves the question whether the government ought to get as much as they could, or whether they ought to be contented with less than they could get if they were to go to the extent of their power.

Question 22 (by Mr. Wentworth). I take it that there can be no doubt but that the gold fields are the property of the public?

Answer. Yes; the gold field is, but the gold is not; that is, the gold brought to the surface by man's industry. I cannot conceive the justice of taxing one man more than another, or why the gold-

diggers should be taxed more than the rest of the community, always supposing that they repay the expense which the Government is put to by their occupation of the gold fields. The gold is under ground, and would remain there but for the work of these men. Their industry brings it to light in the same way that the fleece of the flock is brought to the market by the industry of the squatter, and the produce of the field by the industry of the farmer.

Question 24. Do you not think that it should be our object to obtain as much revenue as can be obtained beneficially?

Answer. Yes; but beneficially is a word of wide meaning. You may get a large revenue, but it might be more beneficial to get a smaller one.

Is not the Government aware that the average profits of the miner are no greater than the average profits of other men, and not nearly so great as the average profits of merchants and farmers? Certainly the Honourable, the Minister of the Interior, must have this knowledge, for he observed in a recent speech¹⁴ to the Commons of Canada, "that in the aggregate it takes more money to find and take out gold than the gold amounts to after it is taken out." And he added: "The total amount of money spent in taking gold out of placer-mining regions throughout the world, so far as known, is far in excess of what has been taken out."

The rich spots are exceptional, and the enormous outlay of time and money in prospecting ought to be considered in weighing the relation of the gold-dust in the miner's cabin to the state of which the miner is a member.

Moreover, taxation of *gross* output is indefensible, whether the tax is laid on a gold mine or a lumber mill or an iron foundry. There is no fixed relation between the gross yield of any mine and the wealth of its owner; and just as a mill may turn out millions of feet of lumber in a year, and whilst so doing send its operator to the poor-house, a gold mine may yield hundreds of ounces of dust without advancing its owner an ell toward prosperity. Witness a Bonanza Creek claim, regarded in the Klondike as rich, in which one of the representatives was interested, whose yield for a season's run

though pleasant to look upon fell \$5,000 short of paying the labour bills incurred in mining it.

What would be thought of the Government which, on hearing a rumour that a few lumbermen were making extravagant profits, should leap to the conclusion that every lumber mill must be as good as a mint, and, without waiting to inquire, impose on all lumber mills an annual tax of ten per cent. of the value of their gross output?

Even if the Yukon District should pay an aggregate sum such as the regulations seek to gather into the national treasury, there can be no justification of the system which splits it into a vexatious number of taxes and lays them all exclusively on miners. Why should the trading companies, the shop-keepers, the liquor-dealers, and the artisans contribute nothing to the maintenance of government, beyond the inland and tariff taxes which miners pay as well as they? Are the toilers of the mines the only beneficiaries of government?

Nor, if the Yukon District should be taxed to the extent the regulations call for, is there apparent reason why the twenty-second section of the Bill by which it is sought to give Messrs. Makenzie and Mann a valuable railway franchise, and the seventeenth section of the "Schedule" of the same Bill, should become law. They are as follows:

22. The lands granted to the contractors or to the company under the said contract, shall be free from taxation for ten years from the granting thereof, except municipal taxation by an incorporated city, town or village within the Provisional District of Yukon.

17. There shall be payable to and reserved by the Government a royalty of one per cent. upon all gold mined by placer or alluvial or hydraulic mining upon the lands selected hereunder.

The policy of making fish of one and flesh of another seems questionable; and if various forms of taxes and a royalty of ten per cent. are excellent aids to desirable ends in the case of placer ground in the hands of John Doe, they should be equally good in the case of placer ground in the hands of

Messrs. Mackenzie and Mann, especially in that the lands sought by Mackenzie and Mann will, should the Bill become law, be theirs in fee simple and therefore free of annual entry fees and the regulations requiring actual mining operations to prevent forfeiture of title; whereas the miner who relies on the Crown leasehold must pay such entry fee and also carry on mining operations on his claim for at least three consecutive months of every year, as the Gold Commissioner's ruling now stands.

But, it may be urged, how, in the absence of heavy taxes, is Canada to benefit by possession of the Klondike? To which we make answer: As California, and Colorado, and Nevada, and Arizona, and Montana, and Australia, and British Columbia are benefiting by their Klondikes, which is another way of saying what one of the ablest journals¹⁵ of the Dominion said recently:

The chief benefit Canada can derive from the Klondike gold fever is indirect, rather than direct. * * * The gain Canada must look for from these gold-fields is the increased trade they will give her.

Taxation That Is Odious.

The royalty on gold is unjust and oppressive, and the miners are mindful of its qualities. They are, through us, seeking the repeal of the regulations imposing it; and there is not in their attitude anything disrespectful of authority, for they rest in the contentment that the tax was levied in ignorance of some things Government has hitherto enjoyed no means of knowing—things having to do with conditions under which mining is carried on in the ice-bound Klondike. Therefore, they confidently expect repeal, having, as they have, the utmost faith in the solicitude of Canada for their welfare and the best interests of her north-western empire.

But it may serve to silence opposition from the unthoughtful, if any such there are, to remind that the collection of odious taxes has invariably

proved to be immoderately costly—so much so, in sooth, that the public revenues have rarely profited in respect of them.

British Columbia has given trial to a royalty on gold, and, although it was liberal¹⁶ to the miner in comparison with that imposed on the men of the Yukon, experience led to abandonment. The revenue derived was slight; the friction engendered was extreme. Australia has tried to collect excessive taxes from the miners, and has in her statute-books written the trial a failure, after great losses of money¹⁷ and much bloodshed.¹⁸ The Transvaal is now trying to prove Australia erred in growing gentle to her miners; but we all know of the dangerous under-current ever running there in consequence, and the termination of the struggle between the Republic and the miners is not yet.

Why should Canada enter on an illiberal policy? Why should she not profit by the experience of her own British Columbia? Why should she not consider the meaning of Australia's inability to maintain in the halcyon days of Ballarat and Bendigo a policy of taxation which asked the miner to give only thirty shillings¹⁹ a month to Government? Why should she ignore the practice of the most enlightened nations in dealing with modern gold-fields, and return to the first crimson pages of history for her precedents? In Australia to-day the miner pays only a few shillings a year to the state; in the United States he pays as the merchant pays, as the farmer pays, a tax on the wealth he can command; and in other lands where mines are no longer novelties the miner is not regarded as an interloper who may be despoiled of so much of his property as it pleases this or that ministry to find acceptable to its notions of propriety.

To govern the Yukon gold-fields, with taxation reasonable (or even excessive short of the palpably oppressive), a score of police will be ample for every 20,000 men, provided the Dominion shall

give the Yukon District readier means of organizing effective civil municipalities. To govern the Yukon gold-fields and make them "pay their way," with taxation odious, will require an army. How can it be hoped to keep an eye on the output of hundreds, perhaps thousands, of claims, all sluicing at the same time (many of them night and day), without a force of hundreds of spies and collectors, in a country whose auriferous placers are difficult marches apart, and with the International Boundary on the edge of the richest gold-fields, so to speak? And if the average cost to the state of maintaining a salaried officer in the Yukon District is \$2,000 a year, how much of a deficit may the Government have ultimately to deal with should it pursue the royalty policy vigorously?

We do not say this in a spirit of threat; but history repeats itself, and we cannot but think of Australia's unfortunate experience in her early dealings with the miners. Conscious that the men of the Yukon are earnest workers with no desire to shirk their duty to the state, we cannot but urge the adoption of some policy of taxation which while accomplishing all that the Government can with reason seek, will not crush the hopes of these toilers nor cause them to regard the Government as heedless of their rights and careless of their trials. There is no need of the slightest friction; and we have the utmost faith there will be none.

Besides, perseverance in the royalty policy might bring annoying and costly litigation. It is not clear that excessive taxes, discriminative in character and not required in the orderly enforcement of government, can be collected from the mines leased prior to the adoption of the regulations imposing such taxes. The Government has duties as well as rights; and it might develop that amongst its duties is respect for the terms of its contracts with claim-holders. The doctrine that the Government may by *ex post facto* laws, and

without the consent of the grantee, vary in essence the terms of the grant cannot be accepted until the highest court of the Dominion shall have sanctioned it. It were a dangerous thing to meddle with mines if one could have no security that his grant from the Crown would not shift with the notions of every ministry. Yet, notwithstanding that the grants thus far made to Yukon miners assign "the exclusive right to *all* the proceeds" realized from the placer claims conveyed, for the year specified in the conveyance, and notwithstanding the regulations with reference to which the locator took and the Crown granted, provided for renewals of these grants from year to year on payment of an annual fee, the Government now asserts itself possessed of the right so to amend the terms of the original grant and renewals thereof as shall leave to the grantee not *all* but *ninety per cent.* of the proceeds of the mineral land conveyed. We cannot see that it has better standing under the constitution in taking unto itself ten per cent. of the gold than ten per cent. of the land, unless the exigencies of Government really require inordinate taxation and the miner is not singled out to the exclusion of the general body of rate-payers. If we are mistaken in this, it were wise not to risk investments based on the probable profits of a mine operated under the terms of a Yukon grant; for behold! the basis of calculation is changeable at the will of a state body which may alter from year to year at the touch of considerations the furthest possible remove from mining. Surely the grants made by the Crown are not so like the chameleon. In essence they must have permanence. Royalty cannot be so excessive as to rob them of the qualities that led the miner to accept them and to place his time, his hopes, and his money in the balance.

XXII.

OUTLINING THE PRINCIPAL CHANGES THE
YUKON MINERS PRAY THE GOVERN-
MENT TO MAKE.

COMING now to the conclusion of our appeal, we beg to set down in order and briefly the recommendations we have been commissioned to make. As representatives of the miners of the Yukon District, we pray :

1. That the Yukon District be given direct representation in the Parliament of Canada. Before the close of the current year the population will number many thousands ; and it is neither right nor prudent to reduce so important a portion of the Colony to the need of expressing itself in the Parliament through men who have never set foot within its boundaries.

2. That it be given the measure of home rule consonant with the general scope of government in organized portions of the Dominion, and popular in character. To have its local government administered from a point so remote as Ottawa, or to have erected in its limits an autocracy such as the genius of British government has set its face against for many a century, cannot but prove injurious to its interests and the interests of all Canada.

3. That it be given improved means of speedily organizing municipalities, to the end of saving the vexatious delays unavoidable as the laws stand.

4. That it be given such transportation facilities as shall place it in prompt connection with tide-water all the year. And in this regard we urge broad statesmanship having recognition of the mutual interest of the United States and Canada—the one because of Alaska, the other because of the Yukon District ; and we suggest an international

convention providing for improvement of the Yukon River and construction of a railway from the sea to some point far enough adown the Yukon to enable men to transport freight readily with horses to Dawson during the annual period wherein the Yukon is closed to navigation.

5. That it be given a postal service forthwith instead of the wretched thing Canada and the United States are dignifying with that name ; and we say it is shameful to both Governments that the mails so important to the District have been suffered to accumulate hundreds of miles from their destination at times when private individuals have found it possible to move from end to end of the postal route.

6. That it be not menaced by the occasion for extravagant taxation afforded by the presence within its boundaries of a multitude of unnecessary officers.

7. That the regulations imposing royalty on the output of placer mines be repealed, and the scheme of taxation be revised in such manner as shall place taxation equitably on all classes of population rather than on one class. We advise an annual poll-tax, and a general tax on the net wealth of individuals and companies ; and we feel sure the Yukon District will not murmur against a poll-tax high enough to yield the Government all the revenue it can reasonably desire and very much more than the net returns from any royalty it can lawfully impose.

8. That the length of every creek, river, and gulch placer claim be made 500 feet.

9. That no placer claims be reserved from location in the usual way.

10. That the timber of the Yukon District be sold there instead of thousands of miles from there. And in this relation we point to the injustice of giving control of timber to men who are not miners but who design to batten on the necessities of miners ; and we deem it cruel to sell in Ottawa at

times prohibitive of bids from the toilers of the Yukon the scanty forests so essential to winning the gold from frosted depths.

11. That regulations be framed defining with certainty the laws applicable to water-rights in the District, and that these laws be made along lines adapted to the peculiar conditions obtaining there and permissive of the mining of hill claims.

12. That the regulations dealing with the use of dredgers in the District be supplemented by provisions for the granting of permits for mining river channels by the hydraulic processes used when streams are diverted from their accustomed beds. We submit it remains to be proved that the gravel of Yukon streams (frozen below a varying depth from water) can be mined by dredgers, dredge-mining having been confined to sea-sands and non-packed gravel, so far as we have knowledge; and until it is shown to be possible, we suggest, no more miles of Yukon rivers should be leased for dredging.

13. That the land grant sought by Messrs. Mackenzie and Mann be not made.

Above all, we pray *promptness* in the framing of a settled policy along broad, magnanimous lines. What could justify the state in hesitation? It has, now, the testimony of pioneer miners, modern engineers, and Canadian officials as to the facts, so far as they are known to-day, on which its policy must rest.

Without reviewing the abundant and detailed information contained in the sworn statements we have filed in the Department of the Interior, much of which has been quoted in preceding chapters, we cannot pass to the last word of this appeal without speaking of the general conclusions of the three classes just enumerated.

And first, the pioneers, those strong-souled men who have earned the right to be heard with the greatest respect when the state is hedging with laws the treasure they have found. Arthur Harper and

Frederick Hart, the pioneers of pioneers,¹ have passed away ; but before the end each spoke—the one in California, the other on his death-bed in Dawson—and both expressed pain at the ungenerous attitude of Canada toward her gold-hunters, as shown in the regulations as amended last August ; and both said surely fairer laws must follow on the heels of fuller information. Henry Thibert, the discoverer of gold in the Cassiar ; Joseph Juneau, the man who first washed gold in the famous Alaskan district which bears his name ; Peter Erusard de Ville, who uncovered the celebrated Paris lode ; and all the other members of the little band of pilgrims who blazed the way to the Northland and were alive and in the Klondike when the news of Canada's changed policy was first proclaimed there, are signers of the petition accrediting us to speak in protest of the crushing changes.

One of them, Mr. John Bourke, a citizen of Canada, who since early in 1886 has been facing the perils of a miner in the Yukon, concludes a strong affidavit,² designed to inform the Government, with these significant words :

In my opinion the development of Alaskan and Canadian-Yukon placer ground demands—not a cramped and exacting policy of government, but the utmost liberality from both the United States and Canada. The natural difficulties there are so great that if Government shall add burdens instead of conferring benefits the result cannot possibly be advantageous to anyone or to the state.

And the mining experts who have recently made their way into the gold-fields confirm the discontent of the men with the picks and shovels as righteous, and the laws as unreasonable. If Canada were to call for testimony from a man eminently qualified by education and experience to give most enlightened data and draw just conclusions as to gravel mining, she could not but accept the testimony of Mr. Augustus J. Bowie. The distinguished engineer is wintering in Dawson ; and after examining the mines thereabout he gave

it as his conclusion³ that a royalty of twenty per cent. of output would kill the District; that a royalty of ten per cent. would cripple the best claims and render valueless the average gravel; that a 500-foot placer claim is none too large; and that the mining regulations should be taken in hand by someone having knowledge of the country and rendered liberal and miner-like. So, another capable expert, Mr. Alfonso A. Tregedgo, has said⁴:

I do not believe any practical miner would care to prospect this vast wilderness unless more inducement is offered than is offered by Canada since the changes of regulations; and I am certain capitalists would not care to invest heavily in a district menaced by the new regulations. That men may even now be pressing hither does not disprove this; for prospecting here has come to a standstill so far as unexplored creeks in Canada are concerned, and the men who have not been here are likely on seeing the country to agree that it is nothing strange that this is so.

I firmly believe the enlightened policy for Canada will be one of the broadest liberality to the miners; for this [Yukon] District should be explored, and carefully explored. I am satisfied as a result of my personal inquiry that the regulations [imposing royalty, reducing length of claims, and reserving claims from location in the usual way] will discourage development of the mineral resources of the District. The climate is uninviting, the soil is worthless, access to the District is difficult, every move is inordinately costly and labourious; and if the policy of the Government be narrow and oppressive men will find it to their advantage to turn elsewhere.

The Dominion's officials in the gold-fields are cordially in sympathy with the opinion that the amendments the miners find objectionable are in truth unreasonable and not adapted to the mines of the Yukon. We feel certain the Honourable, the Minister of the Interior, will so assure enquirers; for he has in his keeping the reports and recommendations of Inspector Charles Constantine, the first Gold Commissioner of the District; those of Mr. Thomas Fawcett, present Gold Commissioner of the District; and the reports of Mr. Ogilvie and knowledge gained from personal interviews with that gentleman, who, it may be observed, on learning at St. Michael of the amendments of August 8, 1897, scouted the report as incredible,

for that he believed it impossible the Government could make changes so opposed to the interests of the Yukon and the Dominion.

"Show the rational governing faculty a contradiction," said Epictetus, "and it will withdraw from it." Therein is our hope. Until now the Government has not been in possession of enough facts to know the present regulations for what they are; and we have faith that the solicitude of Canada for the happiness and weal of all her people will lead to speedy relief of a District it could never have been her design to disadvantage. And when the relief takes form, we commend the scope consistent with this prophecy: that there, near the Arctic Circle, amidst primeval wildness, is springing a mighty province whose history shall be writ in gold, and whose foundations should be laid with statesmanship and that sweet gentleness of spirit which is mindful of the rights and heedful of the petitions of even the least amongst men.

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REFERENCES AND EXPLANATIONS.

II.

1 Mining Records of Harris Mining District, Alaska, vol. 1, p. 1.

2 Joseph Juneau and Richard Harris discovered gold at the mouth of Gold Creek. See Mining Records of Harris District, Alaska, vol. 1, p. 1, and Bruce's Alaska, ch. iv, p. 81. Mr. Juneau is mining on Hunker Creek, near Dawson. The town of Juneau was so named in honor of him.

3 N. A. Fuller was the first to locate a quartz lode. In October, 1880, he recorded a claim on Gold Hill. See Mining Records of Harris District, Alaska, vol. 1. The real discovery of paying quartz, however, was by Peter Erussard de Ville, in May, 1881. Then was located the famous Paris lode on Douglas Island. See Book B, Lode Claims, records of Alaska, p. 52. Mr. de Ville is a resident of Dawson.

4 G. W. Garside, The Mineral Resources of Southern Alaska, Trans. Amer. Inst. Min. Eng., xxi, 1892, p. 815.

5 Fifth Annual Statement Alaska Treadwell Gold-Mining Company.

6 Alaska Mining Record, special edition, Jan., 1898.

7 Ibid. One of the representatives knows this to be true.

8 California and Scotia lode claims, located by J. G. Davies and E. P. Pond.

9 Fifth Annual Statement Alaska Treadwell Gold-Mining Company.

10 Alaska Mining Record, special edition, Jan. 1898, p. 21.

11 Ibid, pp. 5, 6.

12 Ibid, pp. 16, 21.

13 The Alaska Treadwell Company alone has mined more than \$8,000,000, and the yield of the Alaska-Mexican Gold-Mining Company's Douglas Island claims is upward of \$250,000 a year. See Annual Statements of these corporations.

14 This is assuming that of the Klondike's spring clean-up last year \$1,500,000 was hoisted from the drifts in 1897, that the open-cast summer mining yielded \$1,000,000, and that of the spring clean-up for 1898 \$1,000,000 will have to be credited to 1897 winter mining. As to these estimates see succeeding chapters on the Klondike. In 1897 the mines of the Juneau district yielded about \$2,000,000. See Alaska Mining Record, special edition, Jan., 1898, p. 21.

15 Compare the profits already specified with those given in the chapters on the Klondike.

16 Miner W. Bruce, Alaska, ch. iv, p. 31.

17 Alaska Mining Record, special edition, Jan., 1898, p. 5.

18 This statement is made on the authority of several miners in the Yukon District who have resided in Sitka, Mr. Peter Erussard de Ville for one.

19 Miner W. Bruce, Alaska, ch. iv, p. 35.

20 Alaska Mining Record, special edition, Jan., 1898, p. 21.

III.

1 Francis Tagliabue, Deputy United States Surveyor for Alaska, in Tacoma News, Dec. 14, 1897.

2 Between 2,000 and 3,000 men, most of them poor, and many penniless, or nearly so, poured into the region, under the impression that prospecting could be done with somewhat the same rapidity as in Australia, California, or New Zealand. Naturally, the majority were as eager to leave as they had been to go there.

3 This statement is made on the authority of Cook Inlet miners at present in the Klondike diggings.

4 W. M. Wheeler in Tacoma News, Dec. 14, 1897.

5 Ibid.

6 Ibid.

7 Ibid.

8 Ibid.

9 Ibid.

10 Ibid.

11 Ibid, and Alaska Mining Record, special edition, Jan. 1898, p. 25.

12 W. A. Dickey in Tacoma News, Dec. 14, 1897.

13 Tacoma News, Dec. 14, 1897.

14 W. M. Wheeler in Tacoma News, Dec. 14, 1897.

15 Alaska Mining Record, special edition, Jan., 1898, p. 21.

16 On the Apollo Consolidated properties.

17 Alaska Mining Record, special edition, Jan., 1898, p. 3.

18 Francis Tagliabue, Deputy United States Surveyor for Alaska, in Tacoma News, Dec. 14, 1897.

19 Miner W. Bruce, Alaska, ch. iv, pp. 35, 36.

IV.

1 Statement of John Bourke, a Canadian prospector who has found colours, but nothing satisfactory, along the Kuskokwim. Filed by the representatives with the Minister of the Interior, Ottawa.

2 Supplementary Report issued in conjunction with the report of Capt. Ray, U.S.A.; War Department, Wash., Feb., 1898.

3 Miner W. Bruce, Alaska, ch. iv, p. 36.

4 Alaska Mining Record, special edition, Jan. 1898, p. 5.

5 Ibid.

6 Miner W. Bruce, Alaska, ch. iv, p. 36.

7 Ibid.

8 Tacoma News, Dec. 14, 1907.

V.

1 Mr. Bettles, one of the pioneers of Alaska and the Yukon District, is a resident of Dawson. He is temporarily this side the Chilkoot and may be consulted readily.

2 Statement of John Bourke, on file with the Minister of the Interior, Ottawa.

3 Ibid.

4 Ibid.

5 Ibid.

6 Mr. J. G. Davies, now of Juneau, is an assayer and an analytical chemist and understands prospecting thoroughly. He informed Mr. Livernash recently of the matters set forth. The examination of the Tanana was made in 1889.

7 A confidential friend of one of the representatives.

8 The information of Minook Creek was gained by the representatives from Mr. Max Newberry and others, in Dawson, who have been in Minook District since the rush there, and from the most recent private letters received in Dawson from the Lower Yukon.

9 Statement of John Bourke.

10 R. G. McConnell in Geological Survey of Canada, pt. d, an. rep., vol. iv., 1888-9, p. 140d.

11 Ibid., p. 122d.

12 Exploratory Survey of parts of the Lewes, etc., pt. viii, Department of Interior reports, 1889, Ottawa.

13 Geological Survey of Canada, pt. d, an. rep., vol. iv, 1888-89.

14 The Klondike Official Guide, 1898, p. 86.

15 Ibid., p. 23.

16 A statement recently made in writing to Mr. Livernash.

VI.

1 Wm. Ogilvie, Klondike Official Guide, p. 86.

2 Statement of John Bourke, filed by the representatives, Department of the Interior, Ottawa.

3 Based on reports sent to agents Alaska Commercial Company in Dawson, by their Circle City correspondents.

4 Samuel C. Dunham, U. S. Bureau of Labor, in letter from Circle City to one of the representatives.

5 Miner W. Bruce, Alaska, ch. vii, p. 57.

6 Statement of John Bourke, filed by the representatives, Department of Interior, Ottawa. Abundant testimony to the same effect is readily obtainable from one-time Birch Creek miners who have journeyed from Dawson to "the outside" this winter.

7 Expressed in recent letter to one of the representatives.

8 This is stated on the authority of dozens of miners actually employed at \$10 a day until they abandoned work on Birch Creek in order to try for a fortune on the Klondike.

9 Some have already returned.

10 A conservative estimate based on the most careful inquiries of the trading companies and miners.

11 Statement of John Bourke, filed by the representatives, Department of Interior, Ottawa.

12 Ibid.

13 Ibid.

14 A stream larger than Bonanza Creek.

15 San Francisco Examiner, Feb. 21, 1898.

16 Wm. Ogilvie, Exploratory Survey of parts of the Lewes, etc., pt. viii, Department of the Interior reports, 1889, Ottawa, p. 29.

17 Ibid, p. 16.

18 Geological Survey of Canada, pt. d, an. rep., vol. iv, 1888-89, p. 140d.

19 Wm. Ogilvie, Exploratory Survey of parts of the Lewes, etc., p. 16.

20 Ibid.

21 Based on statements of many former Forty-Mile miners now in the Klondike.

22 A conservative estimate made by the representatives from the best information obtainable in Dawson.

VII.

1 Wm. Ogilvie, Exploratory Survey of parts of the Lewes, etc., pt. viii, Department of Interior reports, 1889, Ottawa, p. 29.

2 Unfortunately there is in practice no necessary connection between locating a claim and finding an auriferous deposit. Hundreds of claims have been located in the Klondike region on which no prospecting has been done. The speculatively inclined are easily satisfied. It is the real miner who, intending to earn money from his claim, does not use his right of location until he has found a deposit of gold.

3 Page 88.

4 Filed by the representatives, in the Department of the Interior, Ottawa. This sworn statement is endorsed by the "solemn declarations" of three other expert Klondike miners, all Canadians, and these declarations are similarly filed.

VIII.

1 Filed by the representatives, in the Department of the Interior, Ottawa.

2 Page 1 of Preface.

3 Exploratory Survey of parts of the Lewes, etc., pt. viii, Department of Interior reports, 1889, Ottawa; Report on the Peace River and Tributaries, pt. vii, Department of Interior reports, 1892, Ottawa.

4 The statements as to topography and rocks are necessarily faulty, but are as near the truth as the representatives have been able to get with the present inadequate exploration. They are based on our personal observations, and on fragmentary information gathered from the men of the Klondike.

5 Statement of Alexander McDonald, filed by the representatives, in the Department of the Interior, Ottawa.

6 Ibid.

7 Toronto Globe, 1897.

8 Statement filed by the representatives, in the Department of the Interior, Ottawa.

IX.

1 Maps contained in Wm. Ogilvie's Klondike Official Guide.

2 Wm. Ogilvie, Klondike Official Guide, p. 53.

3 This statement is made on authority of several Klondike miners familiar with the stream.

4 Wm. Ogilvie, Klondike Official Guide, p. 53.

5 Miner W. Bruce, Alaska, ch. vii, p. 55.

6 Estimated by the representatives from data obtained of Klondike miners from the Sixty-Mile.

7 The conclusion of nearly all the miners who have examined the region.

8 Renewals of leases confirm this statement. See reports of Gold Commissioner Fawcett to the Minister of the Interior, Ottawa.

9 Wm. Ogilvie in Exploratory Survey of parts of the Lewes, etc., Department of Interior reports, pt. viii, 1889, Ottawa, pp. 27, 28, reports the travels of Alexander McDonald, who went to the head of a large branch of the Stewart; but he evidently found no one who could say anything of the source of the main river.

10 Geological Survey of Canada, pt. b, an. rep., 1887, p. 183b.

11 Wm. Ogilvie, Klondike Official Guide, p. 52.

12 Ibid, p. 88.

13 Mr. Houser is at present in Dawson. He is a typical prospector of the best school.

14 Geological Survey of Canada, pt. b, an. rep., 1887, p. 13b.

15 Ibid, p. 181b.

16 Page 88.

17 Page 76.

18 Authorized stenographic report, published in Vancouver World, Dec. 31, 1897.

19 Wm. Ogilvie, Klondike Official Guide, p. 86.

- 20 Ibid, pp. 68, 69.
- 21 Ibid, p. 76.
- 22 Mr. Ferguson is temporarily in New York, where he may be consulted as to this.
- 23 In December, 1897.

X.

- 1. Geological Survey of Canada, pt. b, an. rep., 1887, p. 17 b.
- 2 Ibid, p. 119 b.
- 3 Ibid, p. 133 b.
- 4 Ibid, p. 129 b.
- 5 Ibid, p. 131 b.
- 6 Ibid, p. 128 b.
- 7 Ibid, pp. 128 b, 129 b.
- 8 Ibid, pp. 119 b. 141 b.
- 8 An estimate given one of the representatives, last autumn, in Dawson.
- 10 Geological Survey of Canada, pt. b, an. rep., 1887, p. 129 b.
- 11 Ibid, p. 134 b.
- 12 Ibid, p. 120 b.
- 13 Ibid, p. 147 b.
- 14 Ibid.
- 15 Page 42.
- 16 Page 70.
- 17 Wm. Ogilvie, Klondike Official Guide, p. 42.
- 18 Ibid.
- 19 Geological Survey of Canada, pt. b, an. rep., 1887, pp. 151b, 152b.
- 20 Ibid, p. 180b.
- 21 Ibid, p. 152b.
- 22 Ibid, pp. 181b, 182b.
- 23 Klondike Official Guide, p. 42.

XI.

- 1 Geological Survey of Canada, pt. b, an. rep., 1887, pp. 179b, 180b.
- 2 Ibid, p. 181b.
- 3 Ibid.
- 4 Ibid.
- 5 Exploratory Survey of parts of the Lewes, etc., pt. viii, Department of Interior reports, 1889, p. 40.
- 6 Geological Survey of Canada, pt. b, an. rep., 1887, p. 181b.
- 7 Ibid, p. 27b.
- 8 Klondike Official Guide, p. 68.
- 9 Geological Survey of Canada, pt. b, an. rep., 1887.
- 10 Ibid, p. 155b.
- 11 Wm. Ogilvie, Klondike Official Guide, p. 111.
- 12 Geological Survey of Canada, pt. b, an. rep., 1887, pp. 155b, 156b.

13 This is said on authority of pioneer miners now in the Klondike.

XII.

- 1 Geological Survey of Canada, pt. b8, an. rep., 1887, p. 100b.
- 2 Ibid, p. 98b.
- 3 Ibid, p. 97b.
- 4 Ibid, p. 84b.
- 5 Ibid, p. 100b.
- 6 Ibid, p. 101b.
- 7 Ibid, p. 98b.
- 8 Ibid, p. 102b.
- 9 Ibid, p. 105b.
- 10 Ibid, p. 108b.
- 11 Ibid.
- 12 Ibid, p. 113b.
- 13 Ibid.
- 14 Ibid, p. 117b.
- 15 Ibid, pp. 117b, 118b.
- 16 Ibid, p. 119b.

XIII.

- 1 Wm. Ogilvie, Klondike Official Guide, p. 50.
- 2 Mr. Harper said this to one of the representatives. Mr. Ogilvie appears to have gained the impression that Mr. Harper found gold on the White; but we believe the impression is erroneous.
- 3 The account of his experience in the region wherein the White, the Tanana, and the Copper head, is in writing, and is in the possession of one of the representatives, for whom it was prepared.
- 4 R. G. McConnell, Geological Survey of Canada, pt. d, an. rep., vol. iv, 1888-9, p. 144d.
- 5 Wm. Ogilvie, Klondike Official Guide, p. 50.
- 6 Ibid.
- 7 R. G. McConnell, Geological Survey of Canada, pt. d, an. rep., vol. iv, 1888-9, p. 144d.
- 8 The narrative of his prospecting on the Copper is contained in the statement mentioned in note three.
- 9 Ibid.
- 10 Ibid.
- 11 Wm. Ogilvie, in a lecture reported by the Vancouver World, Dec. 31, 1897, p. 9.
- 15 Statement mentioned in note three.

XIV.

- 1 By an agent of the Alaska Commercial Company.
- 2 Wm. Ogilvie, Klondike Official Guide, pp. 65, 66.
- 3 Ibid.
- 4 Ibid.

5 J. A. Phillips and Henry Louis, A Treatise on Ore Deposits, 1896, p. 567.

6 The Prospector's Handbook, 1897, p. 9.

7 Henry N. Copp's Manual for Prospectors, 1897, p. 154.

8 Now in Dawson. He is manager of the North American Trading and Transportation Company's Yukon business.

9 They have been examined by one of the representatives.

XV.

1 J. A. Phillips and Henry Louis, A Treatise on Ore Deposits, 1896, pp. 326, 327.

2 Ibid, p. 513.

3 Ibid, chapter on The Indian Empire, beginning on p. 559.

4 Ibid, pp. 562, 563.

5 Ibid, p. 567.

6 Ibid.

7 Ibid.

8 Geological Survey of Canada, pt. b, an. rep., 1887, pp. 42b, 43b.

XVI.

1 Wm. Ogilvie, Klondike Official Guide, p. 62

2 At "Examiner Cabin," two miles above the Klondike.

3 Observations made by George W. Morgan.

4 Sworn statement of John D. McGillivray, filed by the representatives, in the Department of the Interior, Ottawa.

5 Sworn statement of Charles Hill, an expert miner; filed by the representatives, in the Department of Interior, Ottawa.

6 Geological Survey of Canada, pt. b, an. rep., 1887, pp. 42b, 43b.

XVII.

1 Chapter viii.

2 Filed by the representatives, in the Department of Interior, Ottawa. Mr. McDonald is a native of Canada.

3 The facts given as to supplies were gathered by the representatives from the best authorities in Dawson.

XVIII.

1 Geological Survey of Canada, pt. b, an. rep., 1887, p. 60b.

2 Ibid.

3 Ibid, p. 173b.

4 Wm. Ogilvie, Klondike Official Guide, p. 111.

5 Ibid.

- 6 Ibid.
- 7 Ibid, pp. 114, 115, 119.
- 8 Ibid, p. 111.
- 9 An Act to confirm an agreement between Her Majesty and William Mackenzie, etc.
- 10 Sworn statement of John D. McGillivray, filed by the representatives, in the Department of Interior, Ottawa.

XIX.

- 1 Chapter viii.
- 2 Phillips and Louis, a Treatise on Ore Deposits, 1896, pp. 731, 732.
- 3 Seventh Annual Report of the Witwatersrand Chamber of Mines for 1895, p. 172.
- 4 Ibid.
- 5 Phillips and Louis, a Treatise on Ore Deposits, 1896, p. 778.
- 6 Report of the Director of the Mint, upon the Production of Precious Metals in the U.S., Washington, 1882, p. 416.
- 7 B. Silliman, Report to the Empire Gold and Silver Mining Company.
- 8 Phillips and Louis, A Treatise on Ore Deposits, 1896, p. 753.
- 9 Ibid, pp. 756, 757.
- 10 Eleventh Census, U.S., Mineral Industries, p. 118.
- 11 Raymond's Report, 1870.
- 12 Robinson Mine. See Directors' Annual Report, 1895.
- 13 Chapter viii.
- 14 Phillips and Louis, A Treatise on Ore Deposits, p. 627.
- 15 P. Laur, "Du Gisement et de l'Exploitation de l'Or en Californie," Ann. des Mines, iii, 1863, p. 412.
- 16 At the Eastlick mine, near Weaverville.
- 17 Phillips and Louis, A Treatise on Ore Deposits, 1896, p. 624.
- 18 Ibid.
- 19 Ibid, p. 630.
- 20 Ibid.
- 21 Ibid, p. 621.
- 22 Geological Survey of Canada, pt. b, an. rep., 1887, p. 81b.
- 23 Augustus J. Bowle, Treatise on Hydraulic Mining, Table xliii.

XX.

- 1 The contract calls for a road "of the general standard and gauge of the Kaslo and Slocan Railway in British Columbia." See section 1. The Kaslo and Slocan Railway is narrow gauge.
- 2 From the head of Teslin Lake, where the railway is to terminate, the distance is 65 miles to the head of the Hootallinqua River; thence to the Lewes River, 135 miles;

from the junction of the Hootalinqua and Lewes rivers to Dawson, 330 miles. From tide-water at Skaguay to the head of Lake Bennet the distance is 39 miles; from the head of Lake Bennet to Dawson, 518 miles. See Wm. Ogilvie's *Klondike Official Guide*, pp. 111, 114, 115, 119.

3 Section 1 of contract.

4 The Stikine River, Lake Teslin, and the Hootalinqua, Lewes, and Yukon rivers are not navigable more than five months of the year, by reason of the ice. See authorities cited in chapter xxiii.

5 Bill in Parliament, "An Act to confirm an Agreement between Her Majesty and William Mackenzie and Donald D. Mann, and to incorporate the Canadian Yukon Railway Company," sec. 2f.

6 *Ibid.*, secs. 4 and 5 of Schedule. In this regard the case has been strongly summarized in these words: "For a coast and boundary line of over 1,000 miles not a rail shall for five years be laid to compete with Messrs. Mann and Mackenzie. No matter what eligible passes may be discovered, no matter what citizen may wish to build and engage in lawful transport, there stands the flaming sword of the Government flashing in the monetary defence of Mann and Mackenzie." (Quoted in the Commons by the Minister of the Interior, Feb. 16, 1898.)

7 Sec. 12 of the Bill cited in note 5.

8 The Bill cited in note 5 is silent in this regard.

9 The Bill cited in note 5 fails to provide for fixing or regulation of tolls on steamships.

10 Sec. 2j of the Bill cited in note 5; see also chapter xviii of this appeal.

11 The contract does not oblige the contractors to open the railway for business as a common carrier on or before September 1st, 1898, or by any specified time; it requires them to have it in such stage of construction by September 1st, 1898, as "will permit" of operation. See sec. 1 of Schedule of Bill cited in note 5.

12 Sec. 9 of the Bill cited in note 5.

13 *Ibid.* The holders of "preference shares," who need not be holders of a majority of the subscribed shares, may nevertheless be in absolute control of the affairs of the company.

14 The Bill cited in note 5 authorizes the company to conduct railways; acquire and operate steamers; acquire, maintain, and operate wharves, elevators, and warehouses; acquire and operate mines and mining rights; erect and manage works for generation and transmission of electric light, heat, or power; carry on business as vendors of merchandise, ores, and mineral products; and construct, acquire and operate lines of telegraph and telephone.

15 Section 19 of the Bill cited in note 5.

16 Sec. 11 of Schedule, Bill cited in note 5.

17 See chapter viii.

- 18 Speech in the Commons, Feb. 16, 1898.
- 19 Sec. 13.
- 20 Sec. 18.
- 21 Sec. 12 of Contract.
- 22 Speech in the Commons, Feb. 16, 1898.
- 23 Sworn statement of John D. McGillivray, filed by the representatives, in Department of Interior, Ottawa.
- 24 Speech in the Commons, Feb. 16, 1898.
- 25 Sec. 12.
- 26 Secs. 16, 19.
- 27 Sec. 22 of Contract.
- 28 Sec. 35 of Regulations Governing Placer Mining in the Provisional District of Yukon.
- 29 Authority cited in note 23.
- 30 Sec. 16 of contract recited in Bill cited in note 5.
- “Held and recorded,” is the language of the section.
- 31 Sub-division second of Sec. 12 of contract recited in Bill cited in note 5.
- 32 Speech in the Commons, Feb. 16, 1898.
- 33 In the summer of 1897 a rich find was made there by Kresky and Peterson, and the slope has been shown to be exceedingly valuable.
- 34 For instance, adjoining the fifties, below Discovery, Bonanza Creek; or on the left side of El Dorado Creek.
- 35 Second sub-division of Sec. 12 of Schedule recited in Bill cited in note 5.
- 36 Speech in the Commons, Feb. 16, 1898.
- 37 Chapter viii.
- 38 Phillips and Louis, A Treatise on Ore Deposits, 1896, p. 886.
- 39 Ibid, p. 753.
- 40 Order-in-Council, Jan. 18, 1898.
- 41 Regulation 16.
- 42 Phillips and Louis, A Treatise on Ore Deposits, 1896, p. 544.
- 43 Regulation 16.
- 44 Geological Survey of Canada, pt. b, an. rep., 1887, p. 5b.
- 45 Regulation 17.
- 46 Mr. Ogilvie did not survey either end of Bonanza Creek or the upper end of El Dorado.
- 47 See his progress reports to the Minister of the Interior.
- 48 Order-in-Council, Aug. 8, 1897.
- 49 Sworn statement of John D. McGillivray, filed by the representatives, in the Department of the Interior, Ottawa.
- 50 Regulation 10.
- 51 Treatise on Hydraulic Mining, p. 219.
- 52 Filed by the representatives, in the Department of the Interior, Ottawa.
- 53 Wm. Ogilvie, Exploratory Survey of parts of the Lewes, etc., pt. viii Dept. of Interior rep., 1889, p. 84.
- 54 Klondike Official Guide, p. 74.

- 55 Augustus J. Bowie, Treatise on Hydraulic Mining, p. 219.
- 56 See note 49.
- 57 Ibid.
- 58 Augustus J. Bowie, Treatise on Hydraulic Mining, p. 234.
- 59 Sworn statements of Alexander McDonald, Alexander Calder, John Lind, and Skiffington Mitchell, filed by the representatives, in the Department of Interior, Ottawa.
- 60 Regulation 17.
- 61 See note 42.
- 62 Ibid.
- 63 See reports and recommendations of Inspector Constantine, N. M. P.
- 64 Sec. 2319 R. S. of U. S.
- 65 Sec. 2331 R. S. of U. S.
- 66 One of the representatives has personal knowledge of the historical data here given.

XXI.

- 1 Regulation 2 of the Regulations Governing Placer Mining in the Provisional District of Yukon.
- 2 Regulation 28, Ibid.
- 3 Ibid.
- 4 Regulations 30, 31, Ibid.
- 5 Sworn statement of John D. McGillivray, filed by the representatives, in the Department of the Interior, Ottawa.
- 6 Order-in-Council, Aug. 8, 1897.
- 7 Order-in-Council, Jan. 18, 1898.
- 8 Mining and Scientific Press, San Francisco.
- 9 Filed by the representatives, in the Department of the Interior, Ottawa.
- 10 Ibid.
- 11 Ibid.
- 12 Ibid.
- 13 Rolph Bolderwood, in Cornhill Magazine, Nov., 1897.
- 14 Feb. 16, 1898.
- 15 Daily Nor'-Wester, Aug. 28, 1897.
- 16 Five per cent. of output.
- 17 At one time the deficit in Victoria was £1,000,000. See Greville Tregarthen's work on Australia, pp. 242-259.
- 18 In December, 1885, at Eureka Hill, a captain of the 40th Regiment was fatally wounded; thirteen soldiers were badly hurt; not fewer than thirty miners were killed outright, and many other miners died soon afterward. See Greville Tregarthen's work on Australia, pp. 242-259.
- 19 Ibid.

XXII

1 These old-time miners entered the Yukon Valley in 1882, having journeyed from the Cassiar diggings in British Columbia.

2 Filed by the representatives, in the Department of the Interior, Ottawa.

3 He thus explained himself to one of the representatives, with the knowledge that the views he was expressing would be laid before the Government.

4 In a sworn statement filed by the representatives, in the Department of the Interior, Ottawa.

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